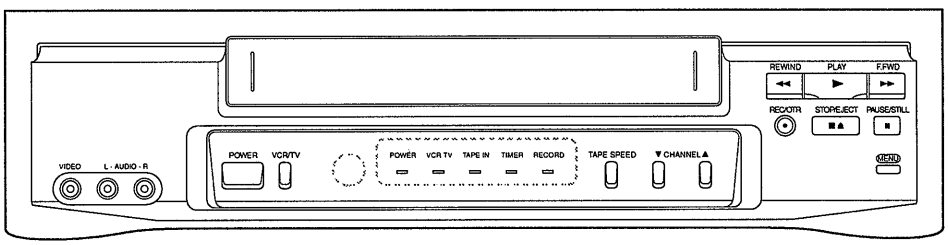
SYLVANIA

SERVICE MANUAL

Sec. 1: Main Section	Sec. 2: Deck Mechanism Section	Sec. 3: Exploded views and Parts List Section
● Specifications ● Preparation for Servicing ● Adjustment Procedures ● Schematic Diagrams ● CBA' s	● Standard Maintenance ● Alignment for Mechanism ● Disassembly/Assembly of Mechanism ● Front Loading Assembly ● Alignment Procedures of Mechanism	● Exploded views ● Parts List

4 HEAD Hi-Fi VIDEO CASSETTE RECORDER

SRV206



VHS

船井サービス株式会社
マニュアル課

JAN. 25. 2000

IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

MAIN SECTION

VIDEO CASSETTE RECORDER

SRV206

Sec. 1: Main Section

- **Specifications**
- **Preparation for Servicing**
- **Adjustment Procedures**
- **Schematic Diagrams**
- **CBA' s**

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SPECIFICATIONS

Description	Unit	Minimum	Nominal	Maximum	Condition
1. Video					
1-1 Video Output (PB)	Vp-p	0.8	1.0	1.2	FL8A
1-2 Video Output (R/P)	Vp-p	0.8	1.0	1.2	
1-3 Video S/N Y (R/P)	dB	41	44		SP Mode
1-4 Video Color S/N AM (R/P)	dB	35	44		SP Mode
1-5 Video Color S/N PM (R/P)	dB	33	37		SP Mode
1-6 Resolution (PB)	Line	210	230		FL8M
2. Servo					
2-1 Jitter Low (R/P)	µsec		0.05	0.1	SP Mode
2-2 Wow & Flutter (R/P) (NORMAL AUDIO)	%		0.2	0.4	SP Mode
3. Normal Audio					
3-1 Output (PB)	dBV	-10	-6	-2	FL8A
3-2 Output (R/P)	dBV	-10	-6	-2	SP Mode
3-3 S/N	dB	38	43		SP Mode
3-4 Distortion	%		2	4.0	SP Mode
3-5 Freq. resp (R/P) at 200Hz	dB	-6	0		SP Mode
(-20dB ref. 1kHz) at 8kHz	dB	-6	-1.5		SP Mode
4. Tuner (10 ch)					
4-1 Video Output (Color Bar signal with 100% White)	Vp-p	0.8	1.0	1.2	E-E Mode
4-2 Video S/N (S/N Y signal)	dB	40	47		E-E Mode
4-3 Audio Output (1kHz)	dBV	-10	-6	-4	E-E Mode
4-4 Audio S/N (1kHz)	dB	40	46		E-E Mode
5. Hi-Fi Audio					
5-1 Output	dBV	-11	-8	-5	FL8HA
5-2 Output	dBV	-11	-8	-5	SP
5-3 Dynamic Range	dB	80	90		SP
5-4 Freq. resp (6dB B.W)	Hz		20~20k		SP

Note: Nominal specs represent the design specs. All units should be able to approximate these – some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; In no case should a unit fail to meet limit specs.

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.

Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1) Insulation tape
2) PVC tubing
3) Spacers
4) Insulators for transistors

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

G. Check that replaced wires do not contact sharp edges or pointed parts.

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector

The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.

Replacement procedure

1) Remove the old connector by cutting the wires at a point close to the connector.

Important: Do not re-use a connector. (Discard it.)

2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

4) Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Clearance Distance (d) (d')
120 V	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

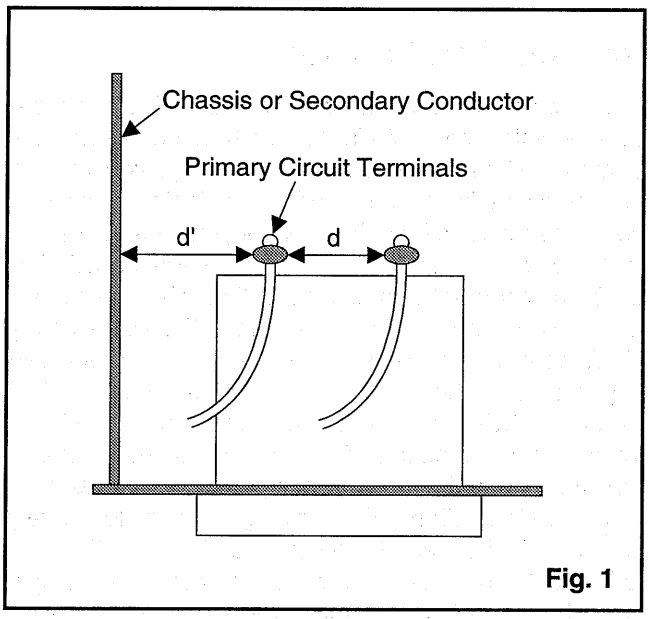


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON) :

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

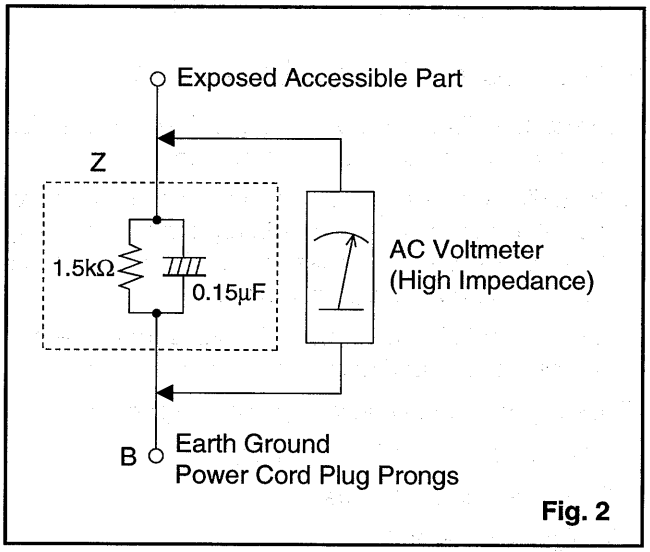


Fig. 2

Table 2 : Leakage current ratings for selected areas

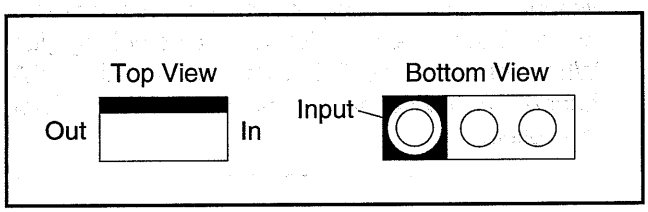
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
120 V	0.15μF CAP. & 1.5kΩ RES. Connected in parallel	i ≤ 0.5mA Peak	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

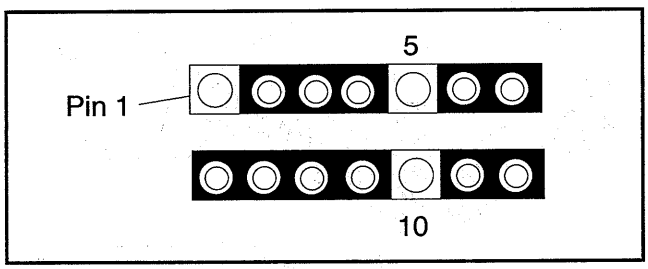
STANDARD NOTES FOR SERVICING

Circuit Board Indications

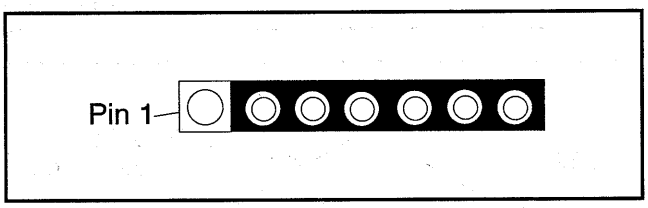
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



b. For other ICs, pin 1 and every fifth pin are indicated as shown.

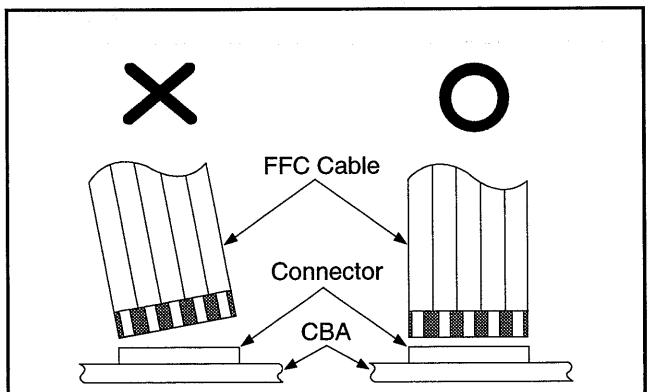


c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



* Be careful to avoid a short circuit.

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

(1) Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

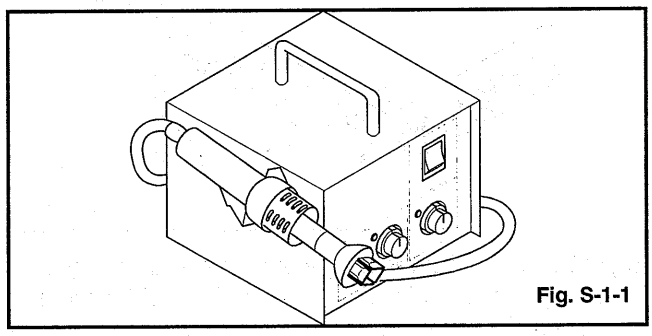


Fig. S-1-1

(2) Remove the flat pack-IC with tweezers while applying the hot air.

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Caution:

1. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)
2. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

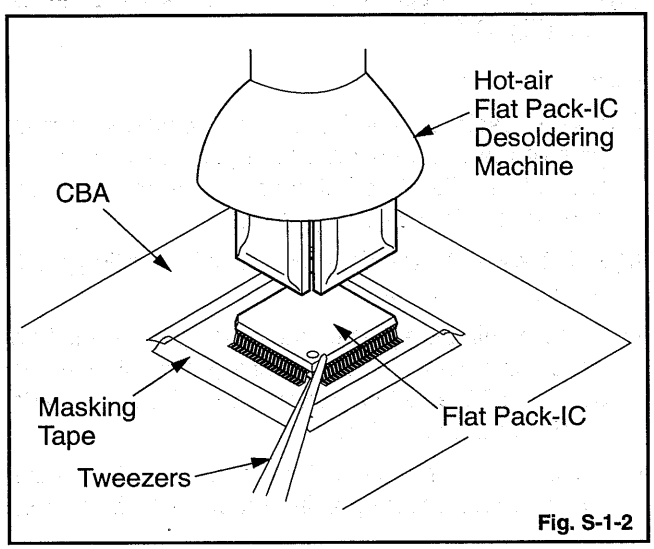


Fig. S-1-2

With Soldering Iron:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

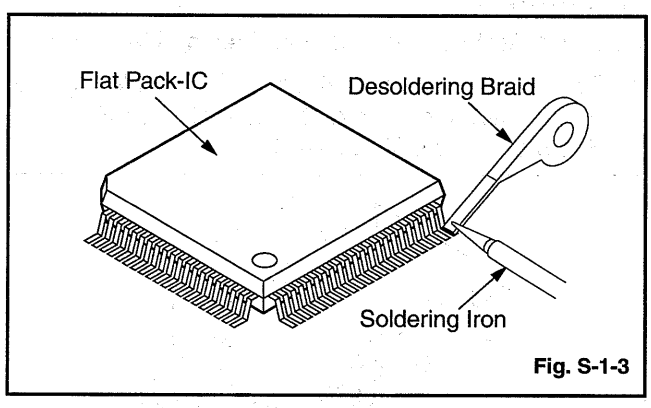


Fig. S-1-3

(2) Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

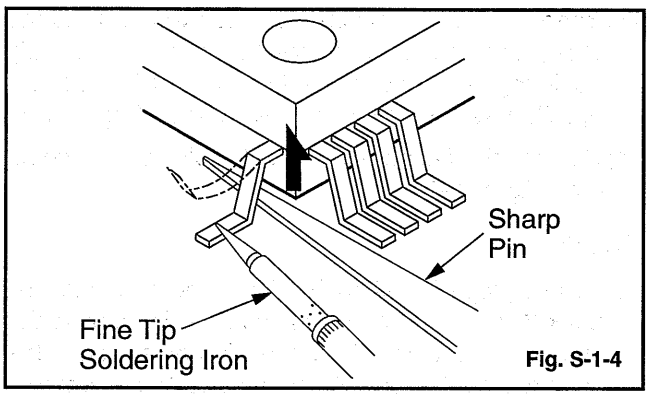


Fig. S-1-4

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

(2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.

(3) While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.

(4) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(5) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note:

When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

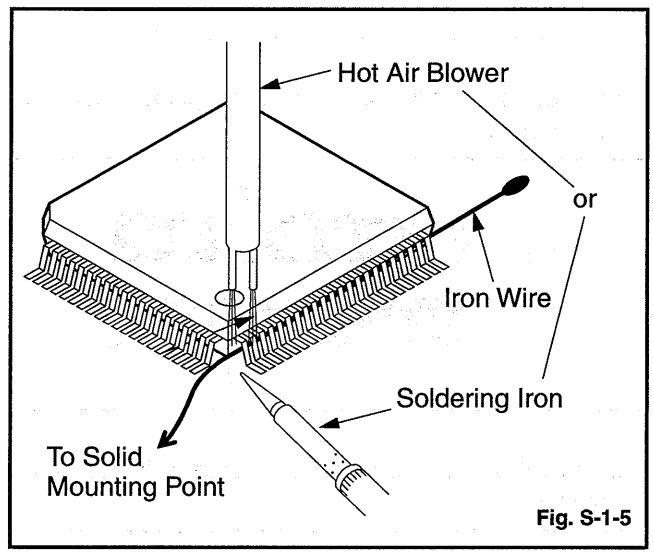


Fig. S-1-5

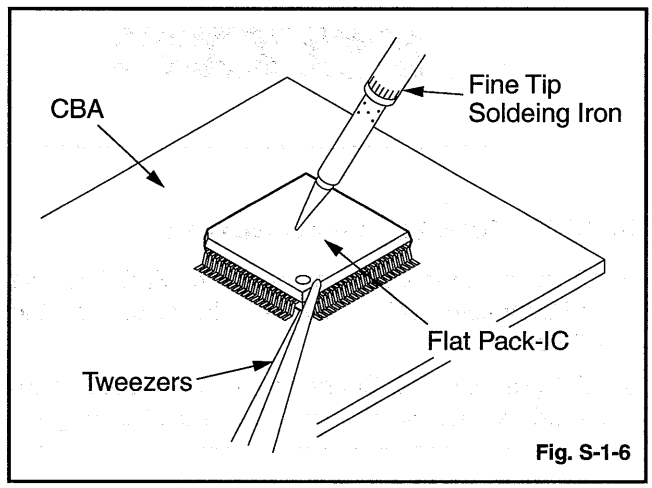


Fig. S-1-6

2. Installation

(1) Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.

(2) The " ● " mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then pre- solder the four corners of the flat pack-IC. (See Fig. S-1-8.)

(3) Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

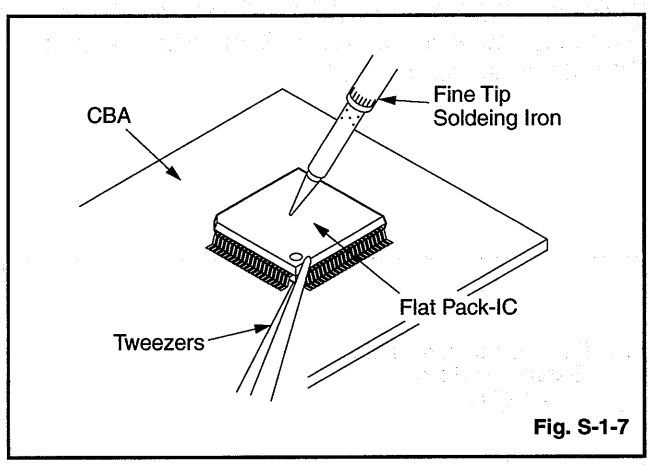


Fig. S-1-7

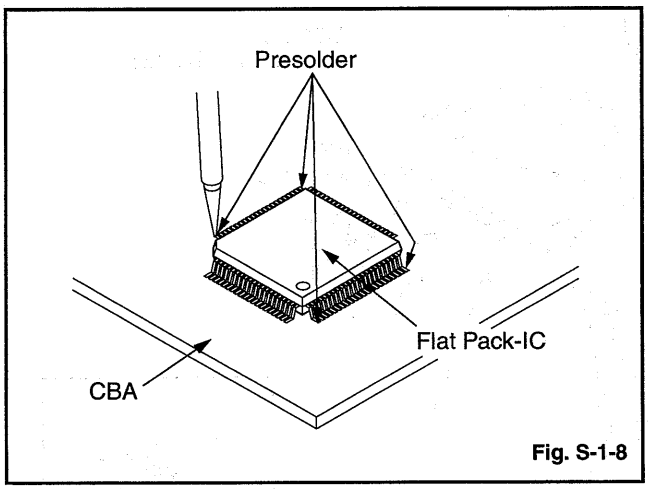


Fig. S-1-8

Instructions for Handling Semiconductors

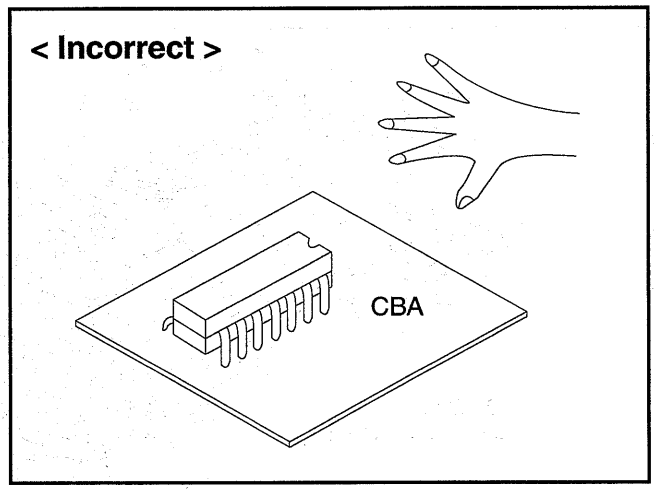
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

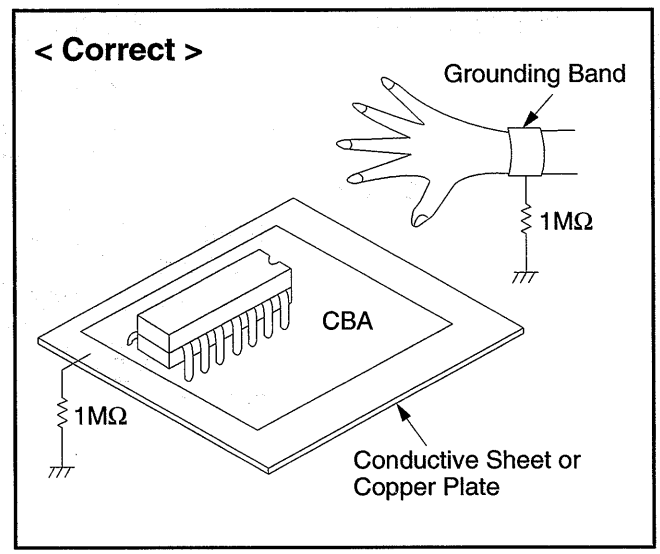
1. Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the workbench or other surface, where the semiconductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors with your clothing.





PREPARATION FOR SERVICING

How to Use U21 Deck Extension Cable

(1) Remove the Deck Mechanism Assembly. If needed, remove the Main CBA from the chassis. Refer to "Cabinet Disassembly Instructions" on page 1-6-1.

(2) Connect Main CBA and Deck with the U21 Deck Extension Cable (A) as shown in Fig. 1. And connect Main CBA and Deck with U21 Deck Extension Cable (B) as shown in Fig. 1. Connect a clip on U21 Deck Extension Cable (B) to TP510 on Main CBA.
(U21 Deck Extension Cable: N1201XA)

(3) Set SW507(LD-SW) on the Main CBA to Service position as shown in Fig. 1.

Note 1: There are 3 types of U21 Deck Extension Cable (A). They are for 2 Head, 4 Head, and Hi-Fi. Use a connector indicated as shown. Be careful not to let the unused connector contact other parts.

Note 2: Some noise will be present in the playback picture when the extension cable is used.

Note 3: Before installing the Deck Assembly, be sure to align two triangle marks of SW1001 on U21 Deck Extension Cable (B). Then, install the Deck Assembly while aligning the hole of Cam Gear with the pin of SW1001, the shaft of Cam Gear with the hole of SW1001 as shown in Fig. 2.

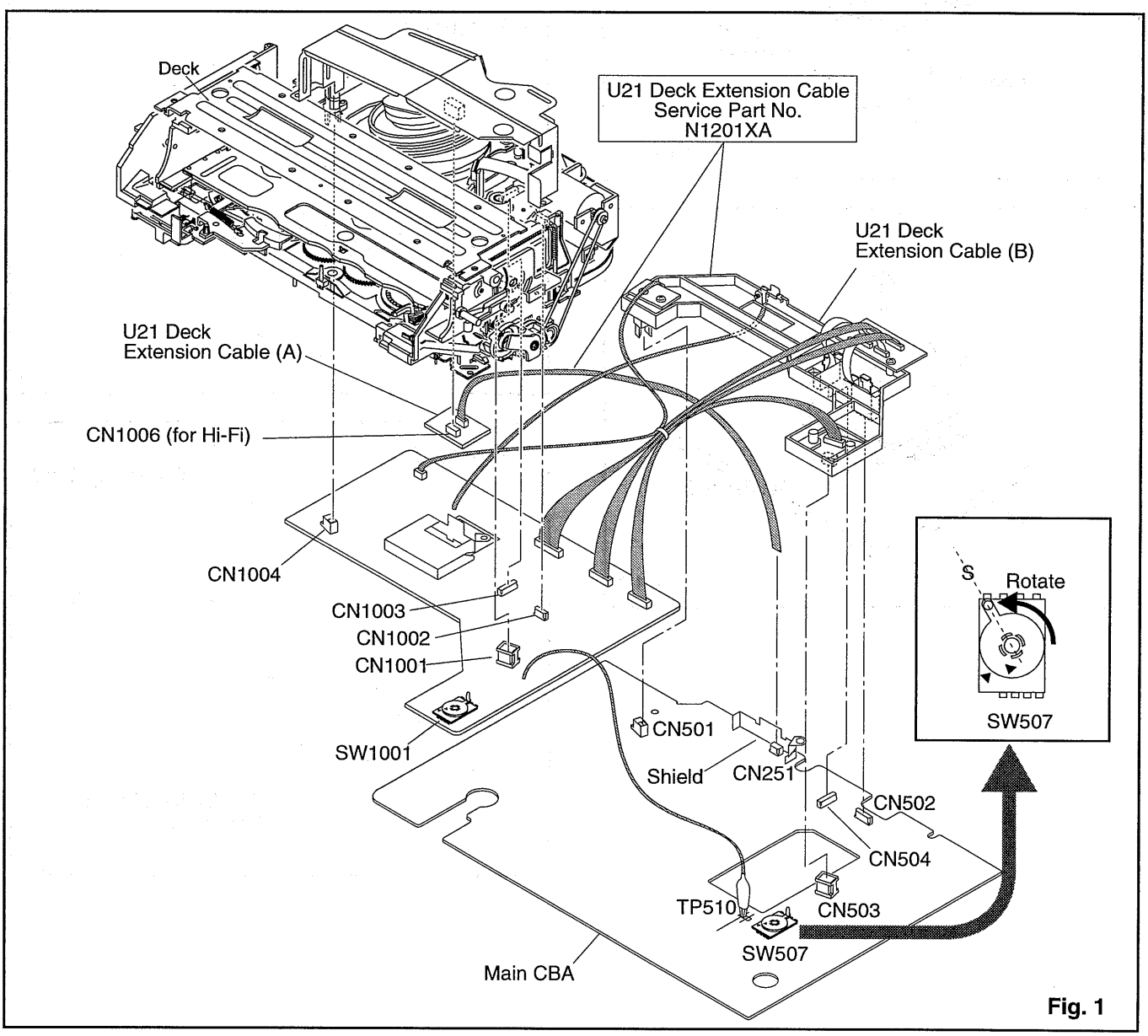


Fig. 1

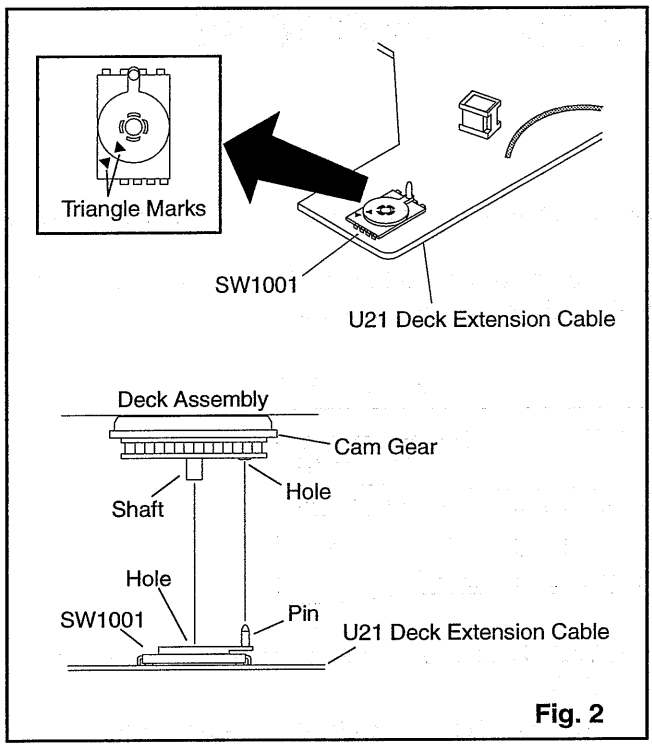


Fig. 2

How to Enter the Service Mode

About Optical Sensors

Caution:

An optical sensor system is used for the Tape Start and End Sensors on this equipment. Carefully read and follow the instructions below. Otherwise the unit may operate erratically.

What to do for preparation

Insert a tape into the Deck Mechanism Assembly and press the PLAY button. The tape will be loaded into the Deck Mechanism Assembly. Make sure the power is on, connect TP502 (SENSOR INHIBITION) to TP501 (GROUND). This will stop the function of Tape Start Sensor, Tape End Sensor and Reel Sensors. (If these TPs are connected before plugging in the unit, the function of the sensors will stay valid.) See Fig. 3.

Note: Because the Tape End Sensors are inactive, do not run a tape all the way to the start or the end of the tape to avoid tape damage.

About REC-Safety Switch

Caution:

The REC-Safety Switch is directly mounted on the Main CBA. When the Deck Mechanism Assembly is removed from the Main CBA for servicing, this switch does not work automatically.

What to do for preparation

In order to record, press the Rec button while pushing REC-SAFETY SW on the Main CBA. See Fig. 3.

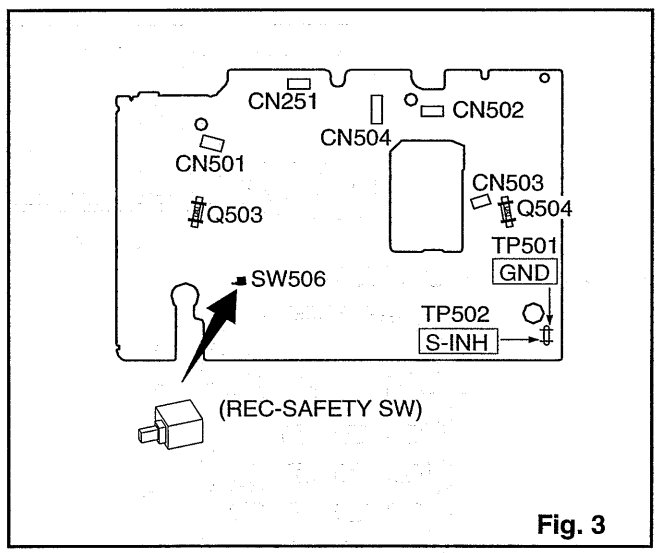


Fig. 3

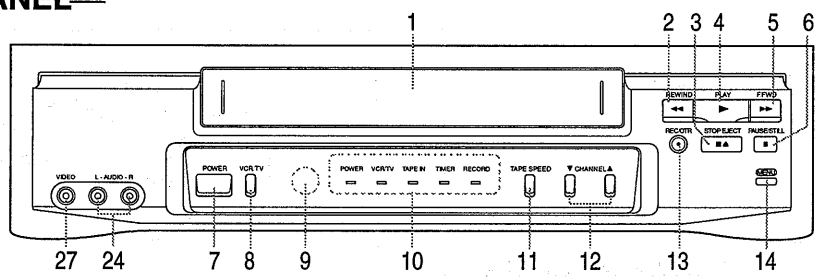
OPERATING CONTROLS AND FUNCTIONS

Model No. : SRV206

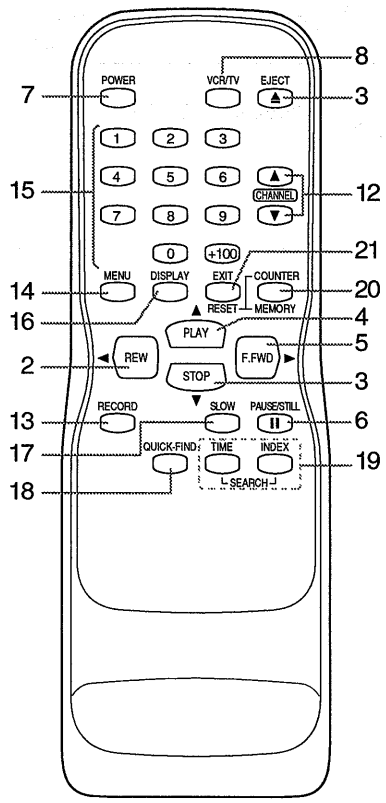
NOTE:

We do not recommend the use of universal remote controls. Not all of the functions may be controlled with a universal remote control.
If you decide to use a universal remote control with this unit, please be aware that the code number given may not operate this unit. In this case, please call the manufacturer of the universal remote control.

—VCR FRONT PANEL—



—REMOTE CONTROL—



Part No.: N9326UD

1. **Cassette Compartment**
2. **REW(IND) button**– Press to rewind the tape, or to view the picture rapidly in reverse during the playback mode. (Rewind Search)

   ◄ **button**– Press to cancel a setting of timer program. Press to correct digits when setting program (For example: setting clock or timer program). Press to add or delete **channel numbers during channel preset.**
3. **EJECT button**– Press to remove the tape from the VCR.

   STOP button– Press to stop the tape motion.

   ▼ **button**– Press to enter digits when setting program (For example: setting clock or timer program). Press to select the setting modes from the on screen menu.
4. **PLAY button**– Press to begin playback.

   ▲ **button**– Press to enter digits when setting program (For example: setting clock or timer program). Press to select the setting modes from the on screen menu.
5. **F.FWD button**– Press to rapidly advance the tape, or view the picture rapidly in forward during playback. (Forward Search)

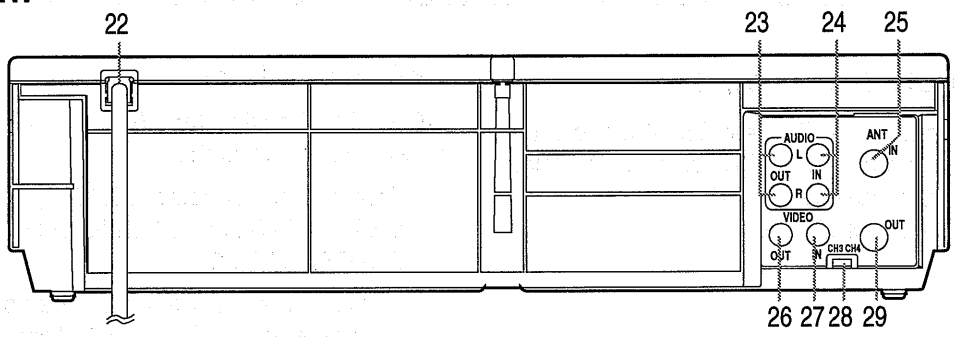
   ► **button**– When setting program (For example: setting clock or timer program), press to determine your selection and proceed to the next step you want to input. Press to determine the setting modes from the on screen menu. Press to add or delete channel numbers during channel preset.
6. **PAUSE/STILL button**– Press to temporarily stop the tape during recording or to view a still picture during playback.

   Frame Advance function– Press to advance the picture by one frame at a time during still mode.
7. **POWER button**– Press to turn VCR on and off. Press to activate timer recording.
8. **VCR/TV button**– Press to select TV or VCR mode.

   VCR position: to view playback, to monitor video recordings or watch TV using the VCR tuner.

   TV position: to watch TV or to view one program while recording another.

—REAR VIEW—



9. **Remote sensor window**– Receives the infrared signals from the remote control.

10. **Indicators**

POWER indicator– Indicates that the power is turned on.

VCR/TV indicator– Indicates that the VCR is in the VCR position.

TAPE IN indicator– Indicates that there is a tape in the VCR.

TIMER indicator– Indicates that the timer recording or OTR has been set.

RECORD indicator– Indicates that it is recording. Flashes when a recording has been paused.

11. **TAPE SPEED button**– Press to choose the desired recording speed : SP/SLP. (only on the VCR)

12. **CHANNEL ▲ or ▼ buttons**– Press to select the desired channels for viewing or recording.

Tracking function– Press to minimize video 'noise' (lines or dots on screen) during playback or slow mode.

Press to stabilize the picture in the Still mode when the picture begins to vibrate vertically.

13. **RECORD button**– Press for manual recording.

OTR button–

Press to activate One Touch Recording. (only on the VCR)

14. **MENU button**– Press to display the menu on the TV screen. Press to exit the menu on the TV screen.

15. **NUMBER buttons**– Press to select desired channels for viewing or recording. To select channels from 1 to 9, first press "0" button then 1 to 9. (only on the remote control)

+100 button– When selecting cable channels which are higher than 99, press this button first, then press the last two digits. (To select channel 125, first press "+100" button then press "2" and "5"). (only on the remote control)

16. **DISPLAY button**– Press to display the counter or the current channel number and the current time on the TV screen. (only on the remote control)

17. **SLOW button**– Press to start slow motion playback. The slow speed can be controlled by pressing the F.FWD button (faster) or REW(IND) button (slower). (only on the remote control)

18. **QUICK-FIND button**– Quick Find mode. (only on the remote control)

19. **SEARCH buttons**

TIME SEARCH button– Time Search mode. (only on the remote control)

INDEX SEARCH button– Index Search mode. (only on the remote control)

20. **COUNTER MEMORY button**– Press to set counter memory on and off.(only on the remote control)

21. **COUNTER RESET button**– Press to reset counter to 0:00:00. (only on the remote control)

EXIT button– Press to exit the menu on the TV screen. (only on the remote control)

22. **Power cord**– Connect to a standard AC outlet (120V/60Hz).

23. **AUDIO OUT jacks**– Connect to the audio input jacks of your audio equipment or another VCR.

24. **AUDIO IN jacks**– Connect to the audio output jacks of your audio equipment or another VCR.

25. **ANT. IN terminal**– Connect to an antenna, Cable system or Satellite system.

26. **VIDEO OUT jack**– Connect to the video input jack of your video camera or another VCR.

27. **VIDEO IN jack**– Connect to the video output jack of your video camera or another VCR.

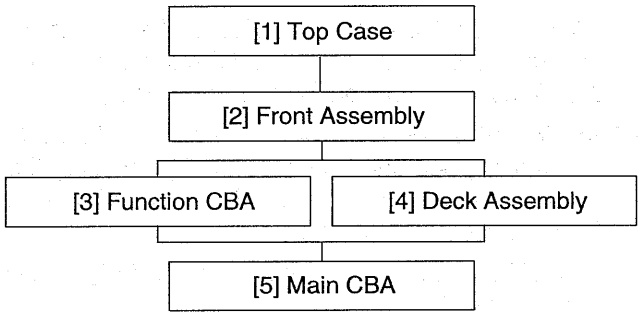
28. **CH3/CH4 selector switch**– Use to select a video output channel (3 or 4) for VCR playback.

29. **ANT. OUT terminal**– Connects to the antenna input terminal on your TV.

CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/ *UNHOOK/UNLOCK/ RELEASE/UNPLUG/ DESOLDER	Note
[1]	Top Case	1	3(S-1)	-
[2]	Front Assembly	2	*3(L-1), *4(L-2)	-
[3]	Function CBA	2, 3	*(L-3), *(CN507)	1
[4]	Deck Assembly	4	5(S-2), *(CN251, CN501, CN502, CN503, CN504)	2, 4
[5]	Main CBA	5	2(S-3), *3(L-4)	3
		↓ ①	↓ ② ↓ ③ ↓ ④	↓ ⑤

①: Identification (location) No. of parts in the figures

②: Name of the part

③: Figure Number for reference

④: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, L=Locking Tab, S=Screw,
CN=Connector
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

⑤:Refer to "Reference Notes."

Reference Notes

CAUTION: Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.

1. Disconnect Connector (CN507) to remove Function CBA. Hold Main CBA while pulling up on the Function CBA. (Fig. 3)
2. Remove five Screws (S-2). Then slowly lift the Deck Assembly up. Lifting Deck Assembly disconnects five Connectors (CN251, CN501, CN502, CN503, CN504). (Fig. 4)
3. When reassembling the unit, always reinsert three Locking Tabs (L-4), and then reinstall two Screws (S-3). These screws are critical for proper shielding of the Main CBA. (Fig. 5)
4. Before installing the Deck Assembly, be sure to align two triangle marks of LD-SW on Main CBA. Then, install the Deck Assembly while aligning the hole of Cam Gear with the pin of LD-SW, the shaft of Cam Gear with the hole of LD-SW as shown in Fig. 6.

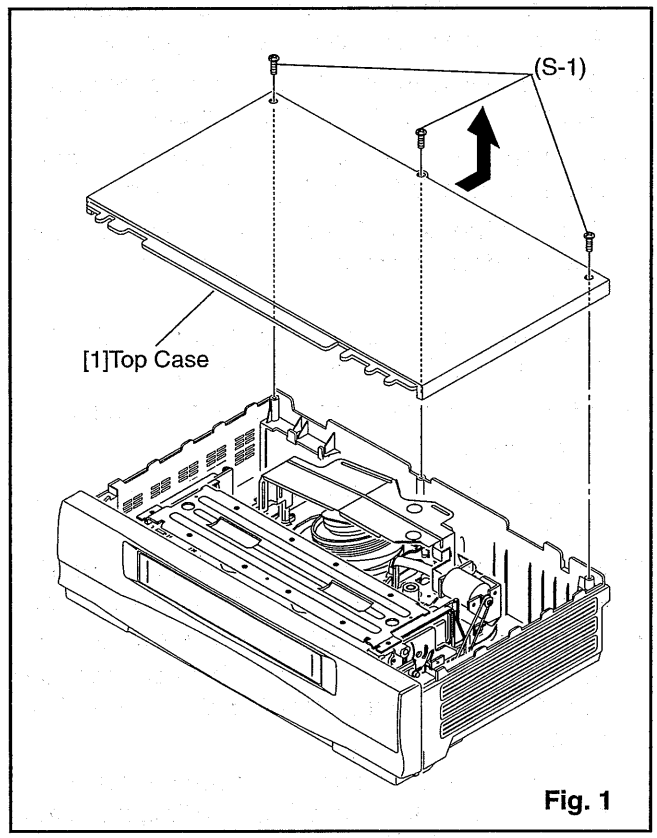


Fig. 1

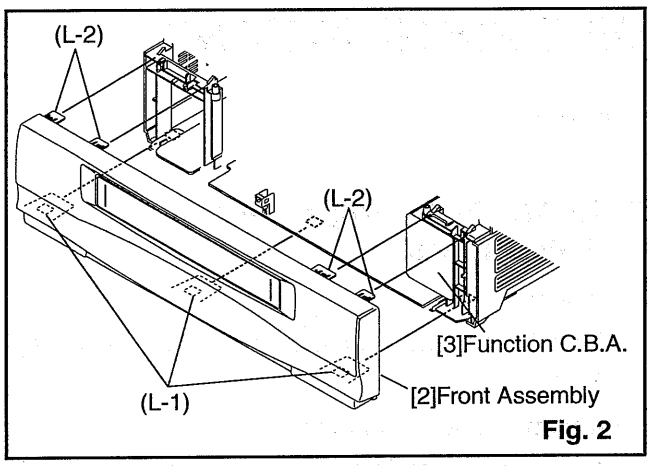


Fig. 2

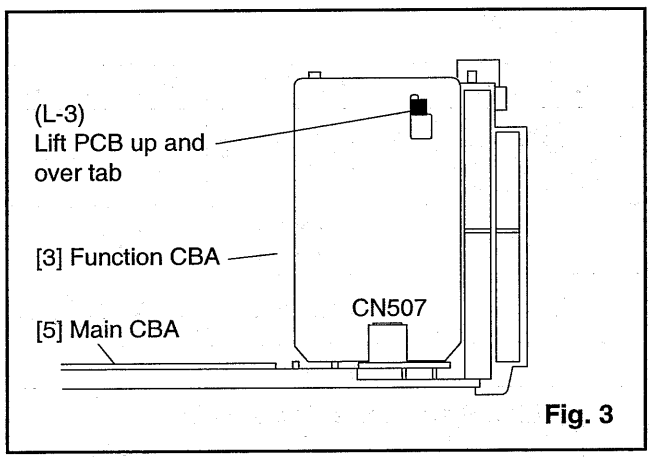


Fig. 3

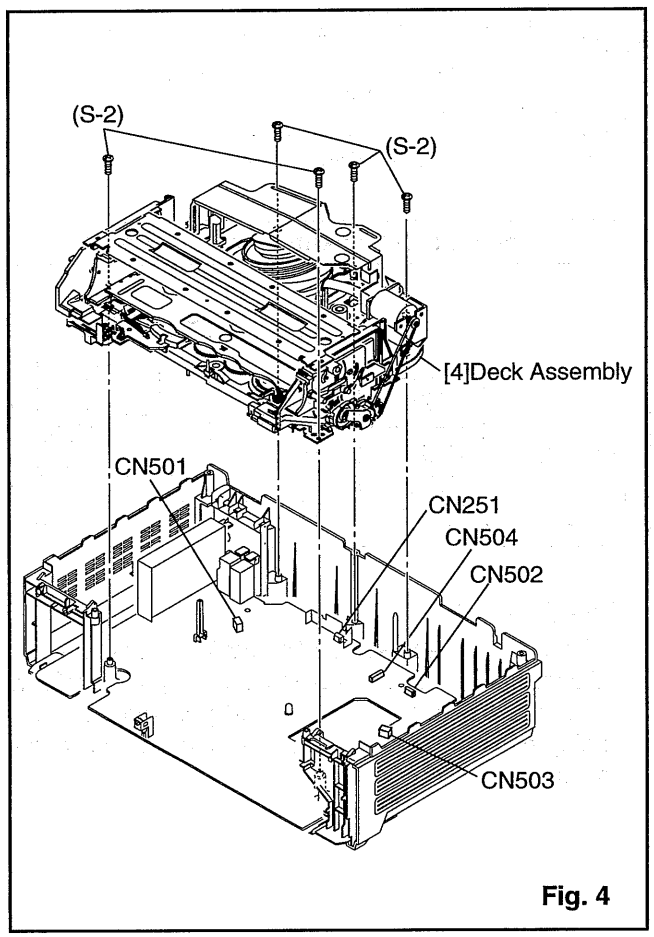


Fig. 4

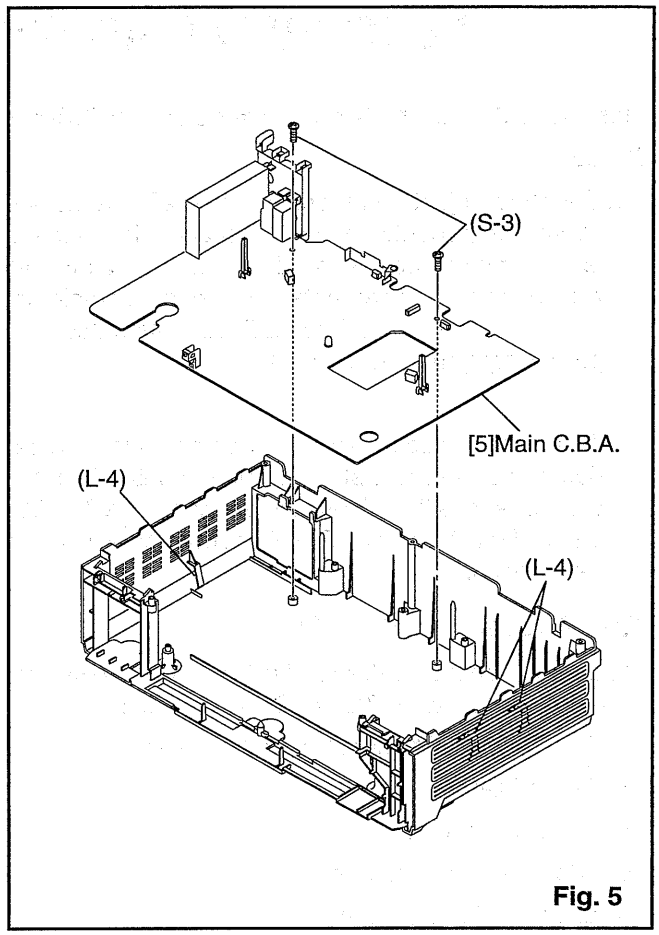


Fig. 5

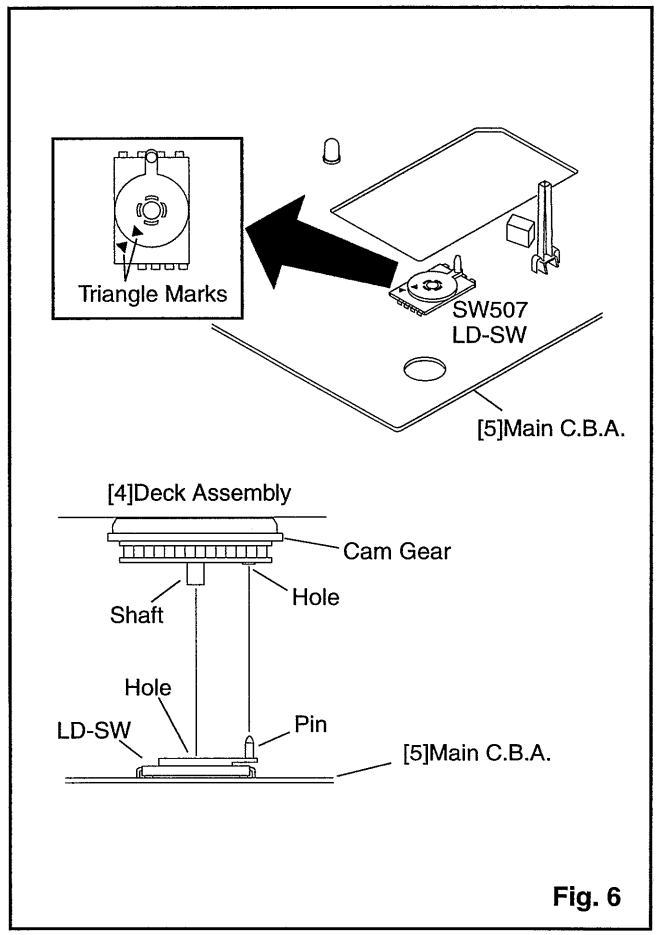


Fig. 6

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is an abbreviation for "Circuit Board Assembly."

Notes:

1. Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2. To perform these alignment / confirmation procedures, make sure that the tracking control is set in the center position: Press either channel "▼" or "▲" button first, then the "PLAY" button (VCR's Front Panel only).

Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe, V-Range: 0.001~50V/Div., F-Range: DC~AC-20MHz
2. USA TV Multi Channel Sound Generator
3. TV Modulator
4. TV UP Converter
5. Video Pattern Generator
6. Alignment Tape (FL8A)
7. TV Monitor

1. Head Switching Position Adjustment

Purpose:

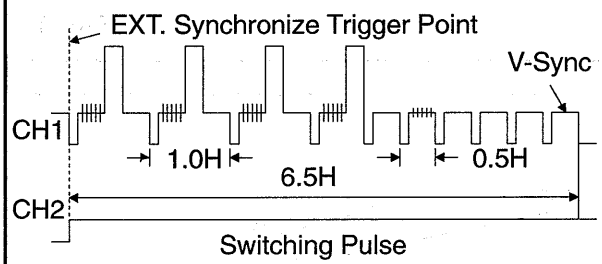
To determine the Head Switching point during playback.

Symptom of Misadjustment:

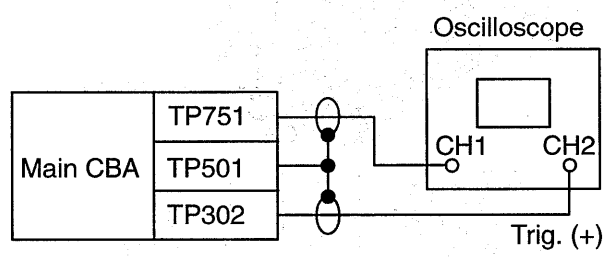
May cause Head Switching noise or vertical jitter in the picture.

Test Point	Adj. Point	Mode	Input
TP751(V-OUT) TP302(RF-SW) TP501(GND)	VR501 (Switching Point)	PLAY (SP)	----
Tape	**Measurement Equipment**	**Spec.**	
FL8A	Oscilloscope	6.5H±1H (412.7μs±60μs)	

Figure 1



Connections of Measurement Equipment



Reference Notes:

Play back the test tape and adjust VR501 so that the V-sync front edge of the CH1 video output waveform is at the 6.5H(412.7μs) delayed position from the rising edge of the CH2 head switching pulse waveform.

2. Separation Adjustment

Caution: Do not attempt to do this adjustment without the specified equipment.

Purpose:

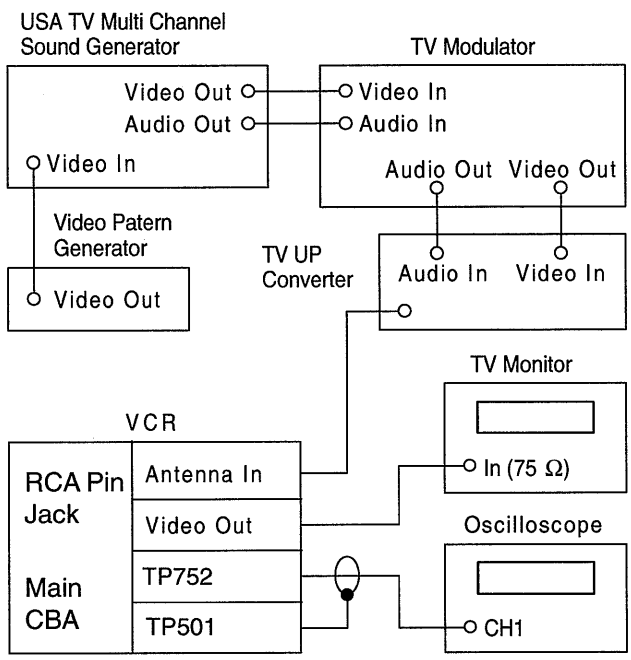
To set the audio output level of the tuner properly.

Symptom of Misadjustment:

Audio signal of L ch and R ch may be mixed under E-E and/or Rec mode.

Test Point	Adj. Point	Mode	Input
Antenna In Video Out TP501(GND) TP752(R ch)	VR499 (3kHz) (SUB CBA)	E-E	Color Bar with 100% White, 87.5% 3kHz Stereo (L ch Only) 30% (-10.4dB) modulation 1kHz mono 100%
Tape	**Measurement Equipment**	**Spec.**	
—	TV Monitor/ Oscilloscope/ USA TV Multi Channel Sound Generator/ TV Modulator/ TV Up Converter/ Video Pattern Generator	—	

Connections of Measurement Equipment

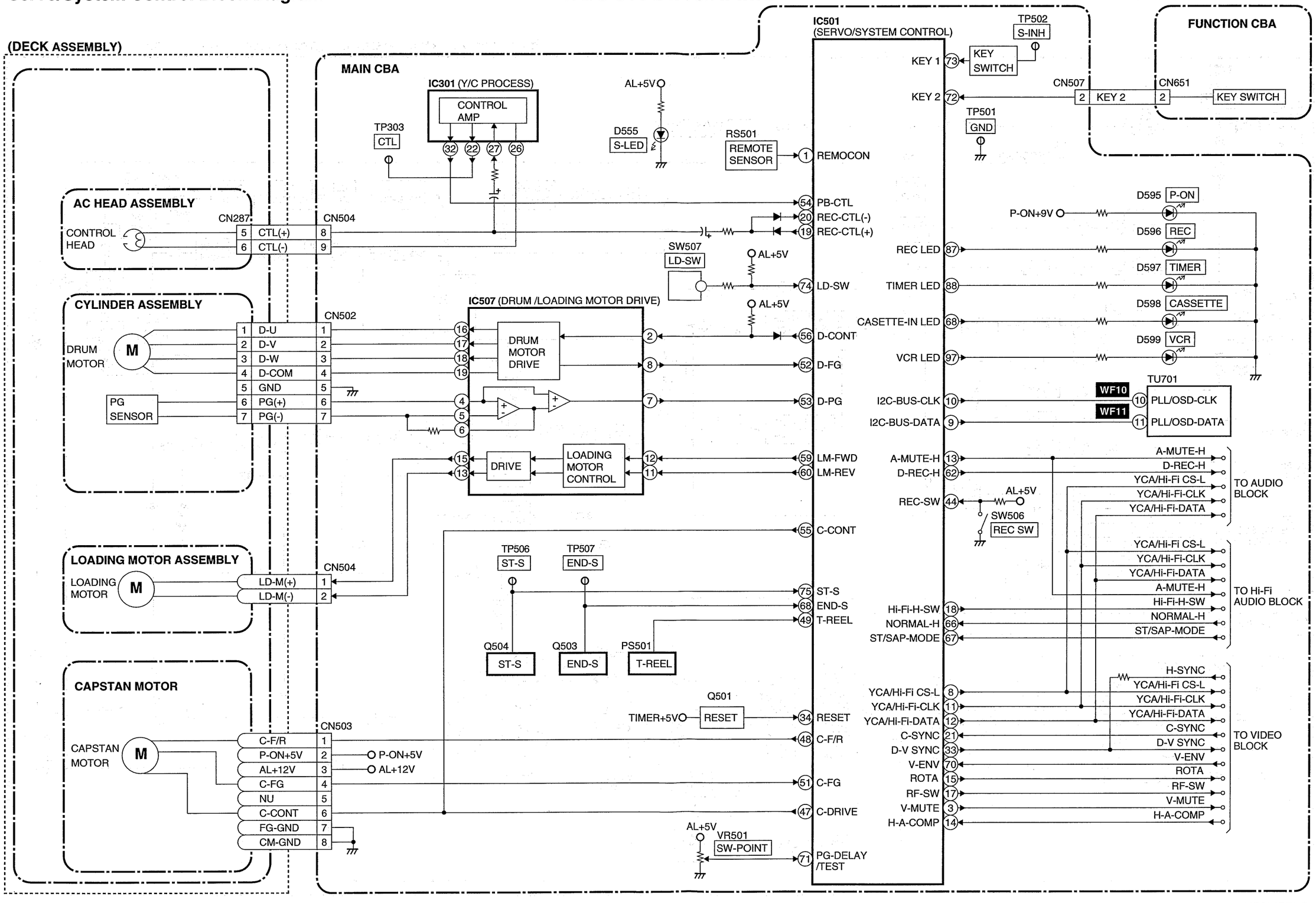


Reference Notes:

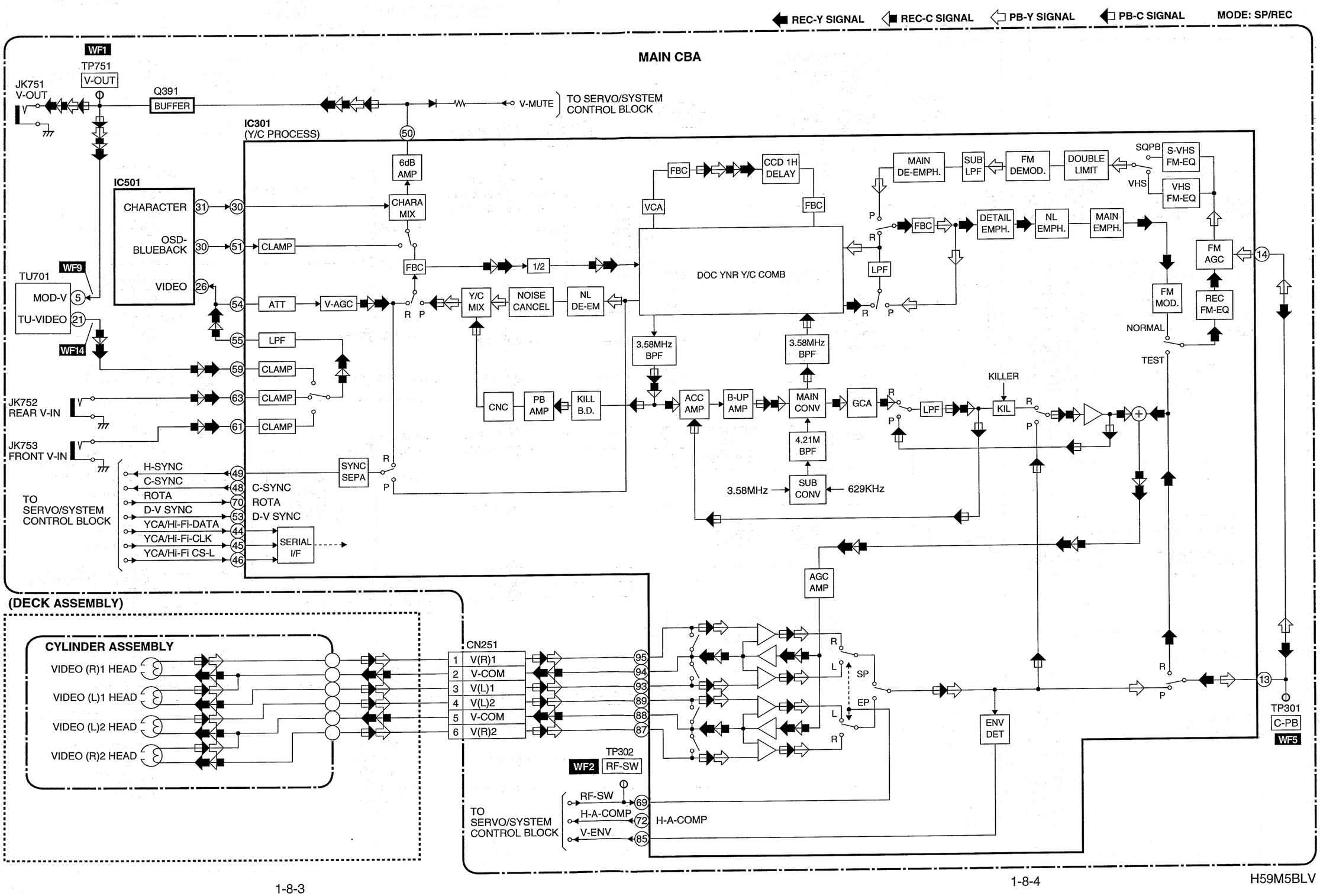
1. Output the color bar with 100% white from the video pattern generator, then make 87.5% modulation by the TV modulator.
2. Output the 1kHz Mono 100% signal from the sound generator, then set 25kHz deviation exactly by the sound generator.
3. Set the sound generator to:

   Tone: 3kHz, Modulation: 30% (-10.4 dB), Pilot: ON, NR: IN, PRE-EN: IN, L only mode.
4. Set the TV up converter to 70dBμ, ch10 (193.25 kHz) then set the channel of the VCR to ch10.
5. Connect the Oscilloscope to TP752.
6. Confirm the word "STEREO" appears on the TV monitor. Adjust VR499 to obtain minimum level of R ch.

Servo/System Control Block Diagram



Video Block Diagram

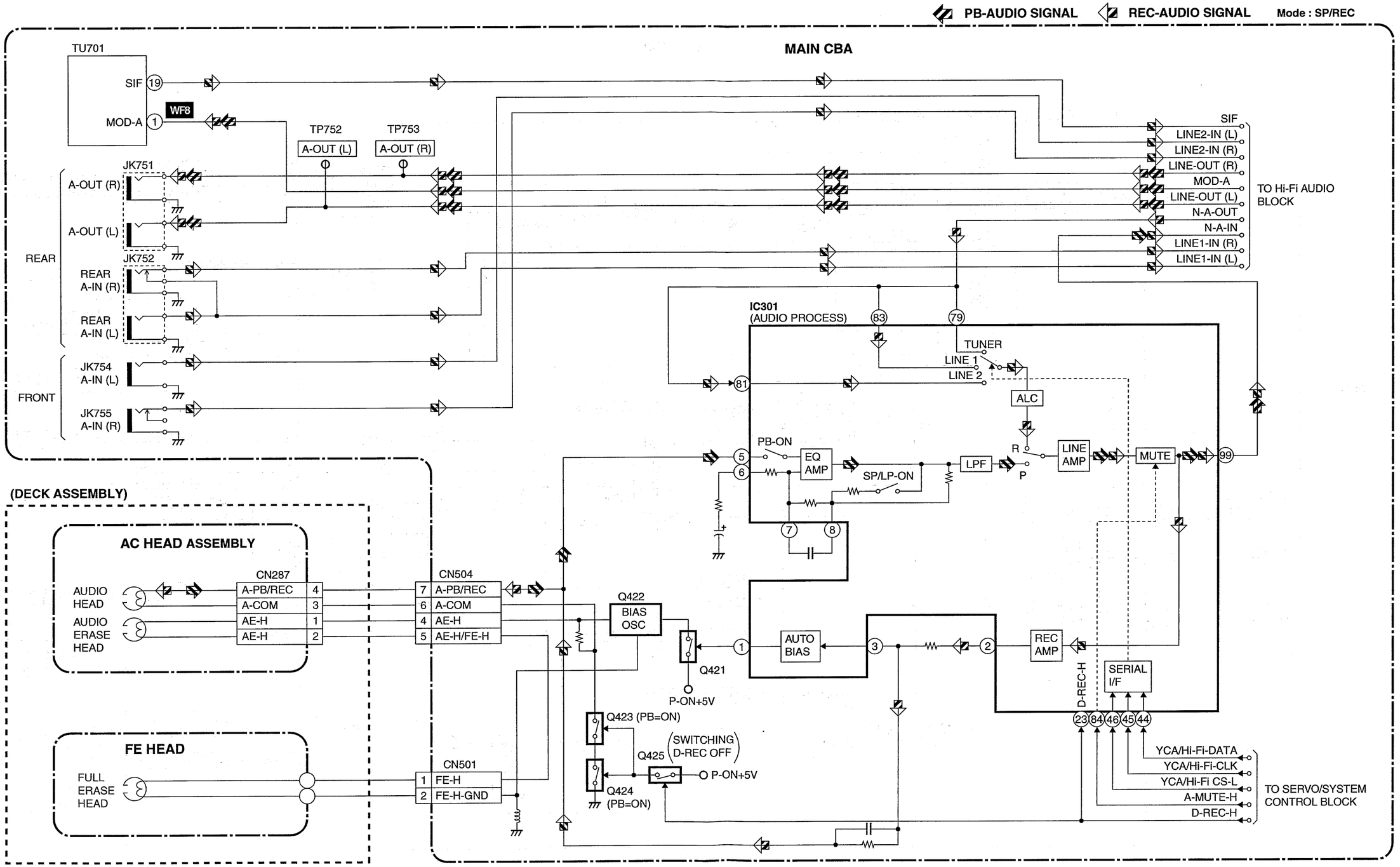


1-8-3

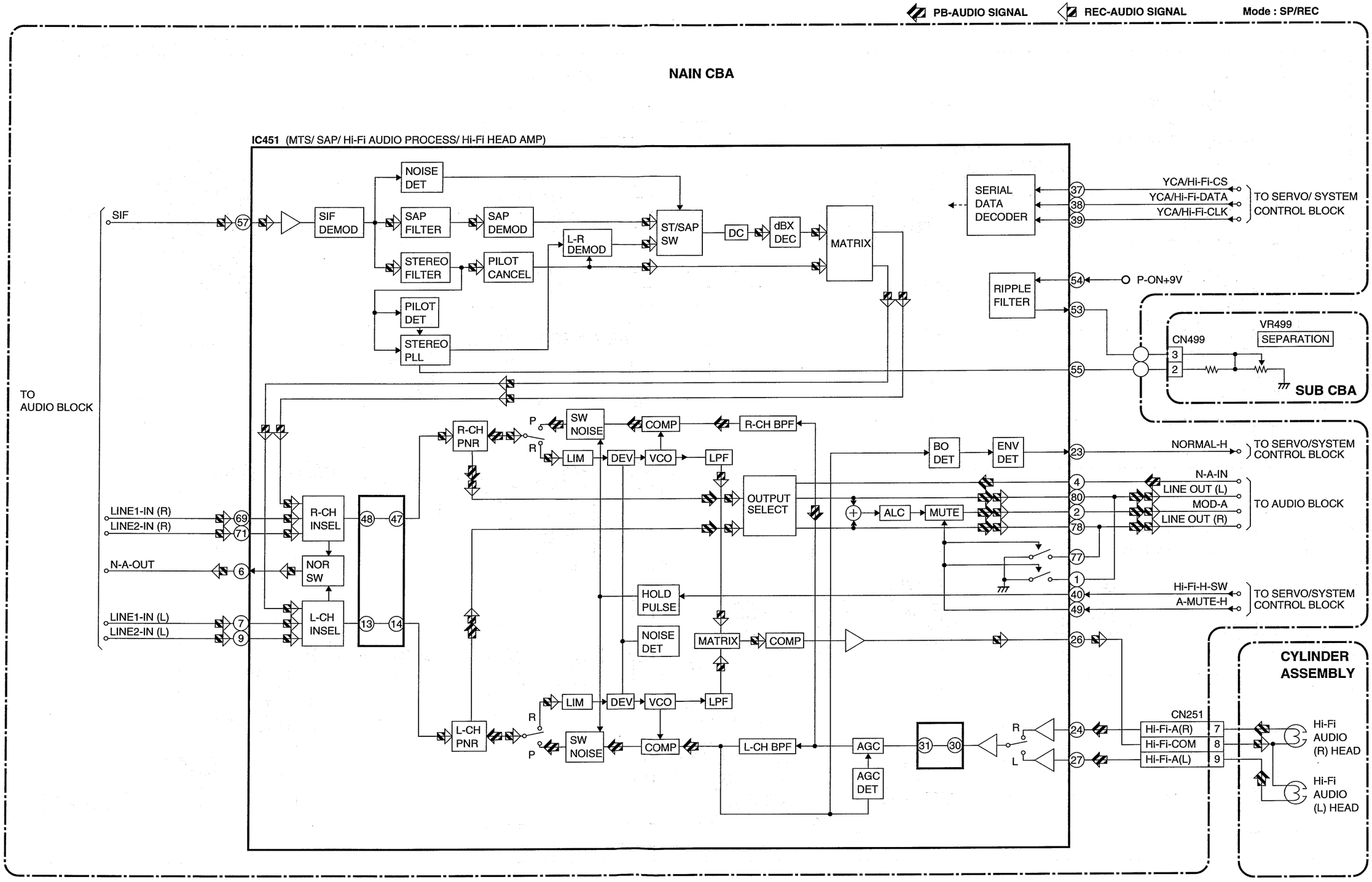
1-8-4

H59M5BLV

Audio Block Diagram



Hi-Fi Audio Block Diagram

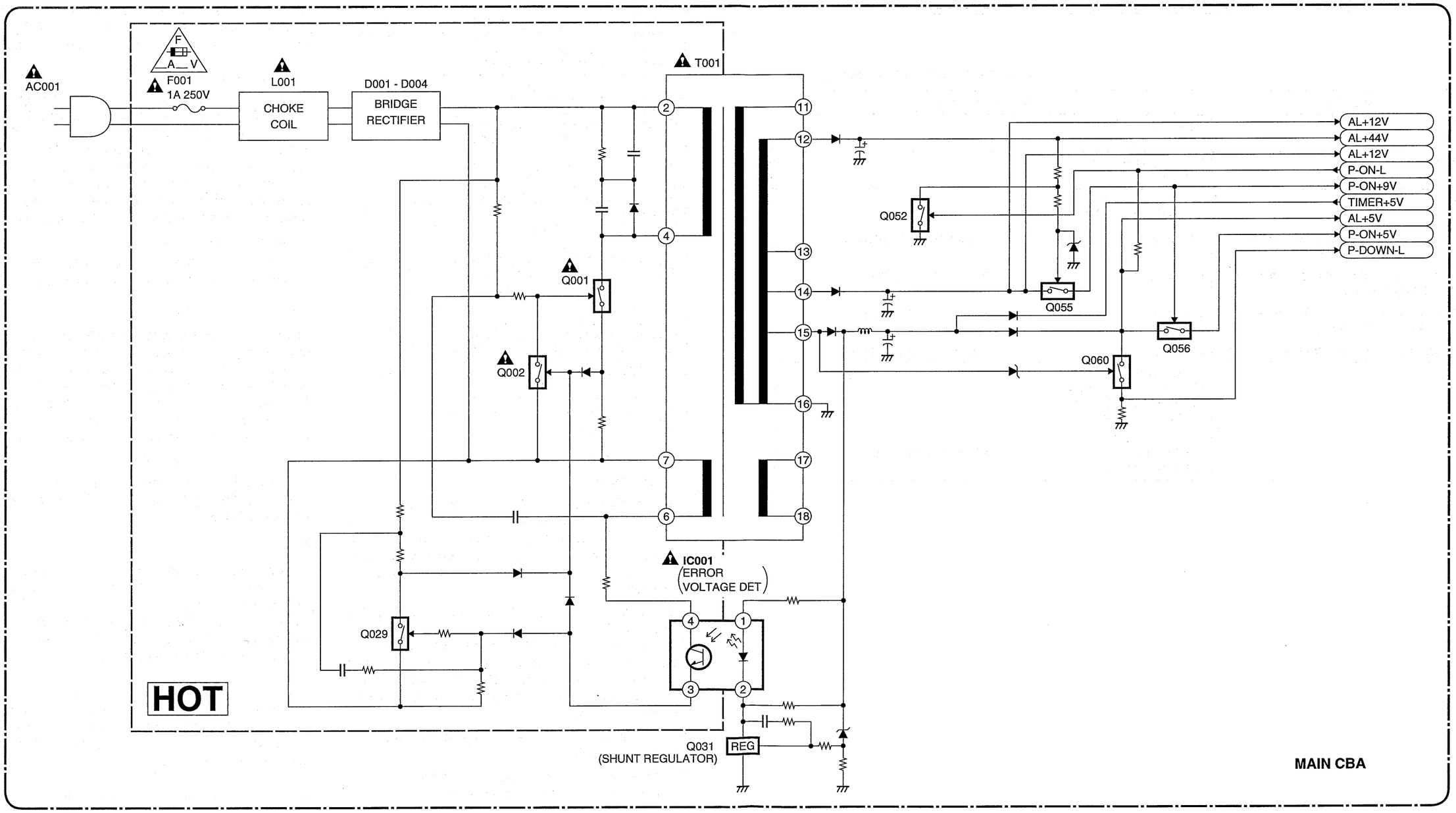


Power Supply Block Diagram

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE -REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

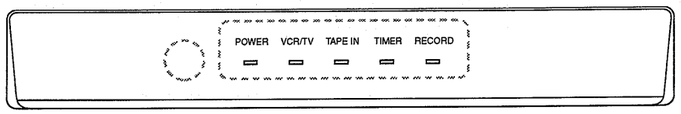


Function Indicator Symbols

Note:

The following symbols will appear on the indicator panel to indicate the current mode or operation of the VCR. On-screen modes will also be momentarily displayed on the tv screen when you press the operation buttons.

Display panel

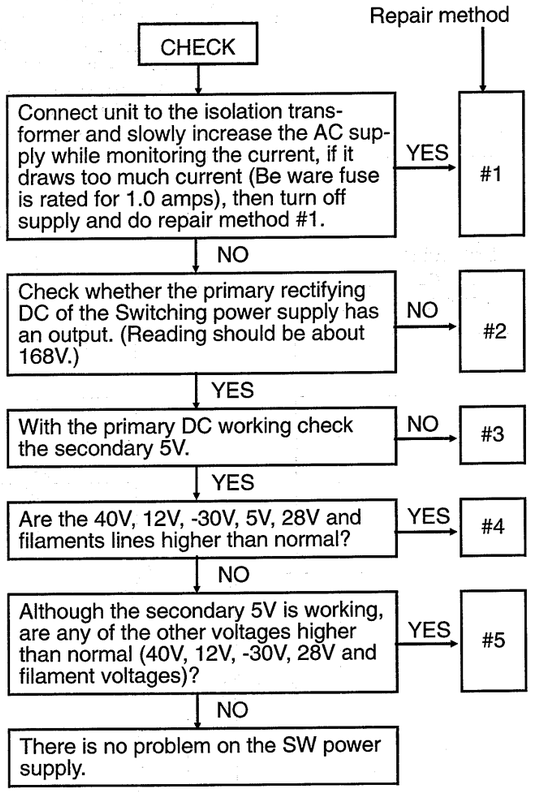


" H "= LED Light on, " L "= LED Light off

Led Mode	Indicator Active	
POWER	Power on = " H " Power off = " L "	
TV/VCR	VCR mode = " H " TV mode = " L "	
TAPE IN	Cassette in = " H " Cassette out = " L "	
1. When reel and capstan mechanism is not functioning correctly.	Cassette in	Blinks at 0.8Hz interval
2. When tape loading mechanism is not functioning correctly.	Cassette in	Blinks at 1.6Hz interval
3. When cassette loading mechanism is not functioning correctly.	Cassette in	Blinks at 3.2Hz interval
4. When the drum is not working properly.	Cassette in	Blinks at 6.4Hz interval
TIMER	Timer stand by = " H " One touch recording = " H " Timer recording = " H " General mode = " L "	
REC	REC mode = " H " REC pause General mode = " L "	Blinks at 0.8Hz interval

Power Supply Trouble Shooting Guide

It is highly recommended that a variable isolation transformer which can monitor current be used. (Alternatively a variable AC source which monitors current will do). Read directions below before power is added!


Repair method
CHECK
Connect unit to the isolation transformer and slowly increase the AC supply while monitoring the current, if it draws too much current (Be ware fuse is rated for 1.0 amps), then turn off supply and do repair method #1.
YES
#1
NO
Check whether the primary rectifying DC of the Switching power supply has an output. (Reading should be about 168V.)
NO
#2
YES
With the primary DC working check the secondary 5V.
NO
#3
YES
Are the 40V, 12V, -30V, 5V, 28V and filaments lines higher than normal?
YES
#4
NO
Although the secondary 5V is working, are any of the other voltages higher than normal (40V, 12V, -30V, 28V and filament voltages)?
YES
#5
NO
There is no problem on the SW power supply.

Repair method #1

(Power must be off)

Short circuit in the secondary side. check diode D013 and {(FIP display model only: D012, D014, D015, D016 and D017) or (LED display model only: D014, D015 and D016)}, switching transistor (Q001), control transistor (Q002), diode (D006), and resistor (R014) replace as necessary.

Disconnect 40V diode (D013), 28V diode (D014), 12V diode (D015),
5V diode (D016) and {FIP display model only: -30V diode (D012) and filament voltage diode (D017)}Check the load continuity of 40V line, 28V line, 12V line, 5V line , -30V line and filament voltage line through a tester (resistance range).

If the tester indicates a lower resistance value around 0 ohm, the line is short-circuited.

Before repairing the switching power supply, find out the short-circuited area of such line and repair it.

If the tester does not indicate any low resistance value (around 0 ohm), no load is short-circuited and there is no problem.

2] Check for any defective parts while the secondary rectifying diodes are disconnected (D013, D014, D015, D016 and {FIP display model only: D012 and D017)} perform a diode check in both forward and reverse directions through a tester.

3] Remove the following components and check for defects: snubber diode (D005), switching FET (Q001), source resistor (R014), control transistor (Q002).

Repair method #2

Check the fuse 1.0A (F001), primary rectifying diodes (D001-D004) as possible problems. Remove the above mentioned parts and check them. The circuit which turns on switching FET (Q001) may be regarded as a possible cause, even if the load at the secondary side is shorted, it can't be detected because switching FET (Q001) isn't operating. Perform check according to the step 1 and 2 of repair method #1 and check the following parts:

(Remove the part from PCB)

Switching FET (Q001), source resistor (R014), gate resistor (R008) and start resistor (R004 and R005).

Repair method #3

A circuit to turn on switching FET (Q001) may not work and this may be regarded as a cause of trouble. Even if the load at the secondary side is short-circuited, it cannot be detected because switching FET (Q001) does not turn on. Therefore, perform check according to the steps 1] and 2] of the repair method #1 and execute the under-mentioned parts breakage check.

(Remove the part from PCB.)

switching FET (Q001), source resistor (R014), control transistor (Q002), gate resistor (R008) and start resistor (R004 and R005).

Repair method #4

The feedback circuit which is monitored by the output of voltage may not work and this may be regarded as a possible cause, remove control transistor Q002 and check for defects. More over, a photo coupler (IC001) and transistor (Q031) may be defective, replace any defective parts with factory originals.

Repair method #5

If the output voltage of the secondary side is slightly high, the line load may be in the "OPEN" state and this may be regarded as a cause of trouble. If there is no output voltage on the secondary side, the rectifying diodes (D013), (D014), (D015) and {FIP display model only only: (D012) and (D017)} may be defective.

SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

Warning

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Note:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}\mu F$).
5. All voltages are DC voltages unless otherwise specified.

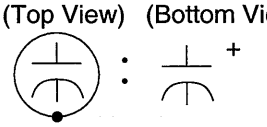
Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	±15%	20°C	-25~+85°C
(Z)	+30 -80%	20°C	-10~+70°C

Capacitors and transistors are represented by the following symbols.

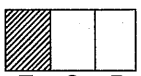
CBA Symbols

(Top View) (Bottom View)



: Electrolytic Capacitor

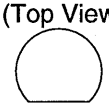
(Bottom View)



E C B

: Transistor or Digital Transistor

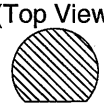
(Top View)



E C B

NPN Transistor

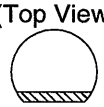
(Top View)



E C B

PNP Transistor

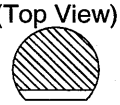
(Top View)



E C B

NPN Digital Transistor

(Top View)

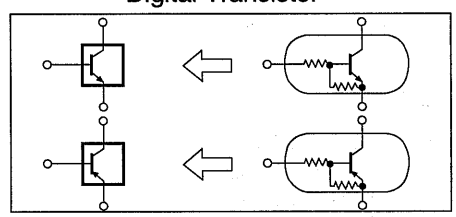


E C B

PNP Digital Transistor

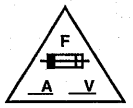
Schematic Diagram Symbols

Digital Transistor



LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. **CAUTION:**



FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

2. **CAUTION:**

This symbol means fast operating fuse.
Ce symbole repréesente un fusible à fusion rapide.

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. **Note:**

(1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.

(2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Wire Connectors

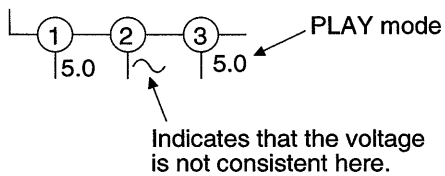
(1) Prefix symbol "CN" means "connector" (can disconnect and reconnect).

(2) Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).

5. Note: Mark "•" is a leadless (chip) component.

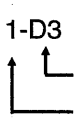
6. Mode: SP

7. Voltage indications for PLAY mode on the schematics are as shown below:



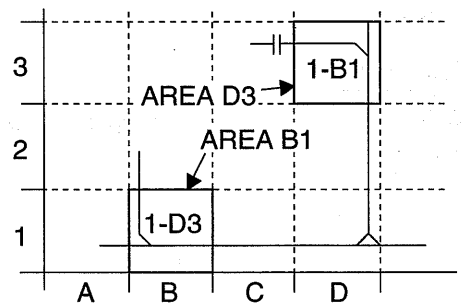
Unit: Volts

8. How to read converged lines



Examples:

1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



9. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.

: Used to indicate a test point with a component lead on foil side.

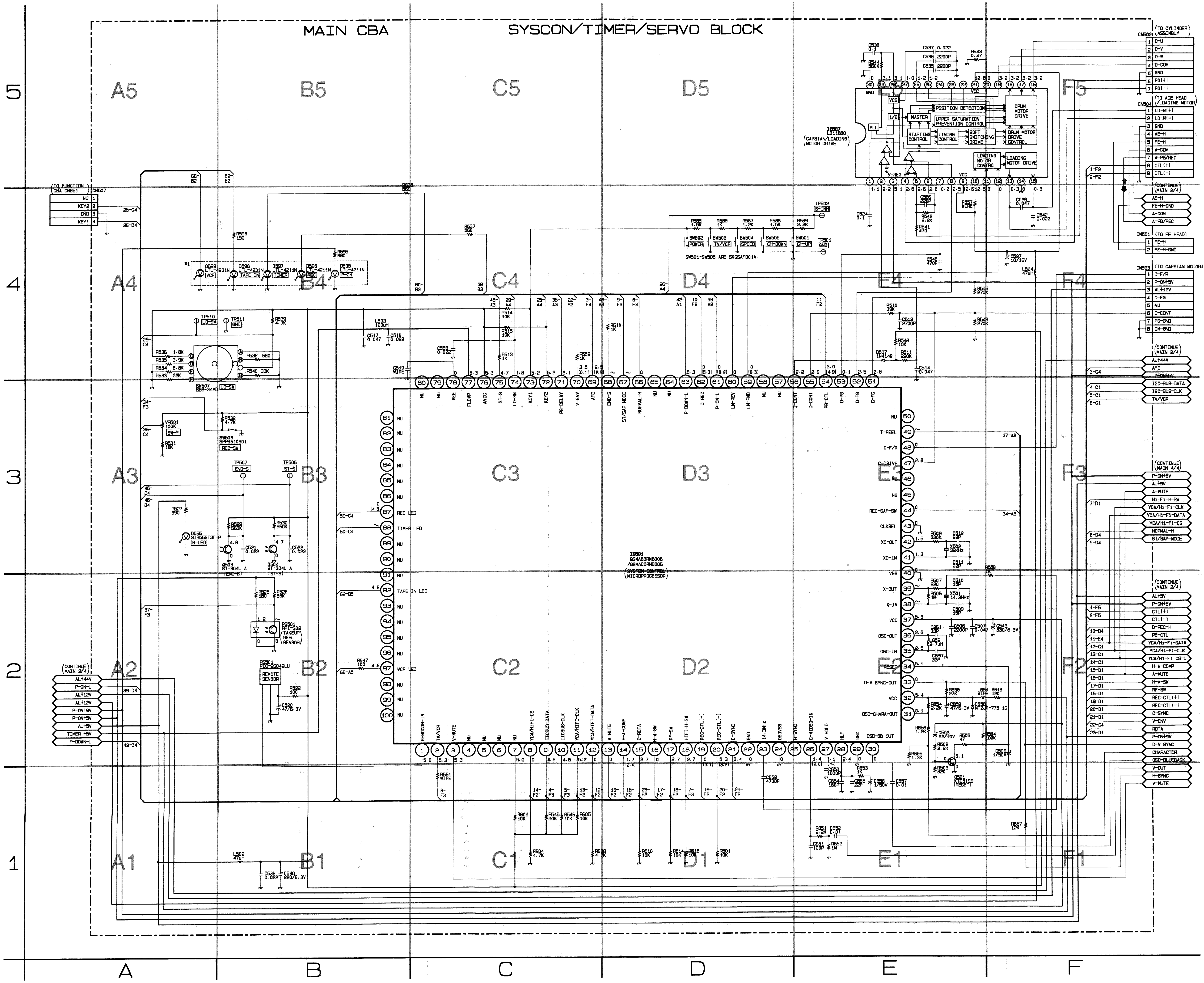
: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

Main 1/4 Schematic Diagram

*1 **Note:**
When it is necessary to replace one or more of the following Diodes, all five should be replaced: D595, D596, D597, D598, D599.

Audio(REC)   Audio(PLAY)



MAIN CBA
SYSCON/TIMER/SERVO BLOCK
IC501
QSMABORMB006
/QSMACORMB006
(SYSTEM CONTROL MICROPROCESSOR)
IC507
LB11880
(CAPSTAN/LOADING MOTOR DRIVE)
POSITION DETECTION
MASTER
UPPER SATURATION PREVENTION CONTROL
STARTING CONTROL
TIMING CONTROL
SOFT SWITCHING DRIVE
DRUM MOTOR DRIVE
DRUM MOTOR DRIVE CONTROL
LOADING MOTOR CONTROL
LOADING MOTOR DRIVE
CN507 (TO FUNCTION CBA CN651)
NU
KEY2
GND
KEY1
CN502 (TO CYLINDER ASSEMBLY)
D-U
D-V
D-W
D-COM
GND
PG(+)
PG(-)
CN504 (TO ACE HEAD /LOADING MOTOR)
LD-M(+)
LD-M(-)
GND
AE-H
FE-H
A-COM
A-PB/REC
CTL(+)
CTL(-)
CN501 (TO FE HEAD)
FE-H
FE-H-GND
CN503 (TO CAPSTAN MOTOR)
C-F/R
P-ON+5V
AL+12V
C-FG
NU
C-CONT
FG-GND
CM-GND
SW501-SW505 ARE SKQSAFD01A.
SW502 POWER
SW503 TV/VCR
SW504 SPEED
SW505 CH-DOWN
SW501 CH-UP
TP501 GND
TP502 S-INH
D599 LTL-4231N VCR
D598 LTL-4231N TAPE IN
D597 LTL-4211N TIMER
D596 LTL-4211N REC
D595 LTL-4211N P-ON
SW507 SSS-34MD LD-SW
TP510 LD-SW
TP511 GND
VR501 100K SW-P
SW506 SPPB610301 REC-SW
TP507 END-S
TP506 ST-S
D555 SIR56ST3F-P S-LED
Q503 ST-304L-A (END-S)
Q504 ST-304L-A (ST-S)
PS501 RPI-302 (TAKEUP REEL SENSOR)
RS501 PIC-26042LU REMOTE SENSOR
Q501 KTC3199 (RESET)
(CONTINUE MAIN 3/4)
AL+44V
P-ON-L
AL+12V
AL+12V
P-ON+9V
P-ON+5V
AL+5V
TIMER +5V
P-DOWN-L
(CONTINUE MAIN 2/4)
AE-H
FE-H-GND
A-COM
A-PB/REC
(CONTINUE MAIN 2/4)
AL+44V
AFC
P-ON+5V
I2C-BUS-DATA
I2C-BUS-CLK
TV/VCR
(CONTINUE MAIN 4/4)
P-ON+5V
AL+5V
A-MUTE
Hi-Fi-H-SW
YCA/Hi-Fi-CLK
YCA/Hi-Fi-DATA
YCA/Hi-Fi-CS
NORMAL-H
ST/SAP-MODE
(CONTINUE MAIN 2/4)
AL+5V
P-ON+5V
CTL(+)
CTL(-)
D-REC-H
PB-CTL
YCA/Hi-Fi-DATA
YCA/Hi-Fi-CLK
YCA/Hi-Fi CS-L
H-A-COMP
A-MUTE
H-A-SW
RF-SW
REC-CTL(+)
REC-CTL(-)
C-SYNC
V-ENV
ROTA
P-ON+9V
D-V SYNC
CHARACTER
OSD-BLUEBACK
V-OUT
H-SYNC
V-MUTE

Main 1/4 Schematic Diagram

Ref. NO	Position
ICS	
IC501	D-3
IC507	E-5
TRANSISTORS	
Q501	E-1
Q503	B-3
Q504	B-3
CONNECTORS	
CN501	F-4
CN502	F-5
CN503	F-4
CN504	F-5
CN507	A-4
MISCELLANEOUS	
VR 501	A-3
TEST POINTS	
TP501	E-4
TP502	E-4
TP506	B-3
TP507	B-3
TP510	A-4
TP511	B-4

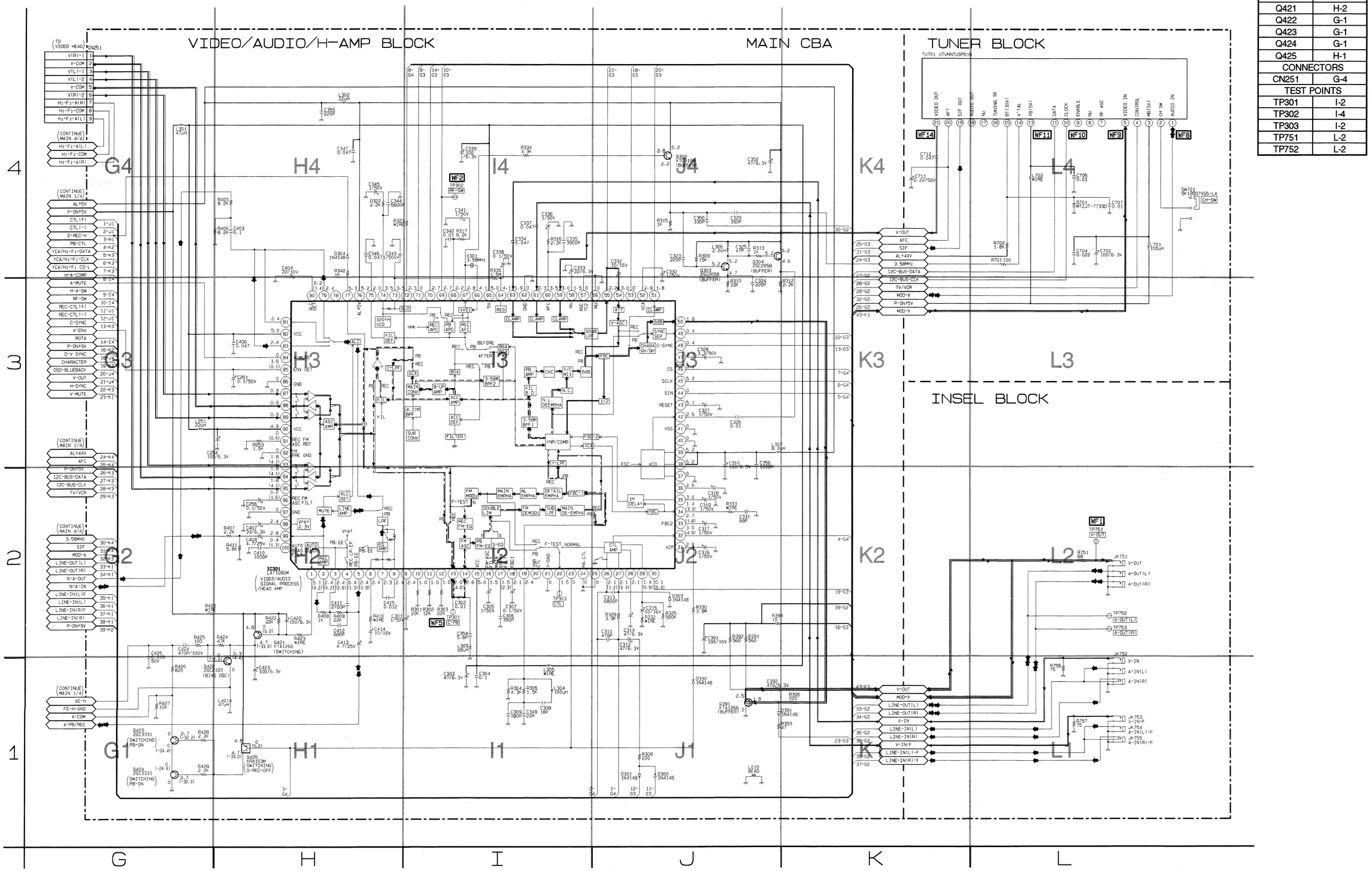
Main 2/4 Schematic Diagram

Luminance + Chrominance(REC)
Luminance(REC)
Chrominance(REC)
Audio(REC)

Luminance + Chrominance(Play)
Luminance(Play)
Chrominance(Play)
Audio(PLAY)

Main 2/4 Schematic Diagram

Ref.NO	Position
ICS	
IC301	H-2
TRANSISTORS	
Q302	J-4
Q303	J-4
Q304	J-4
Q391	J-1
Q421	H-2
Q422	G-1
Q423	G-1
Q424	G-1
Q425	H-1
CONNECTORS	
CN251	G-4
TEST POINTS	
TP301	I-2
TP302	I-4
TP303	I-2
TP751	L-2
TP752	L-2



Main 3/4 Schematic Diagram

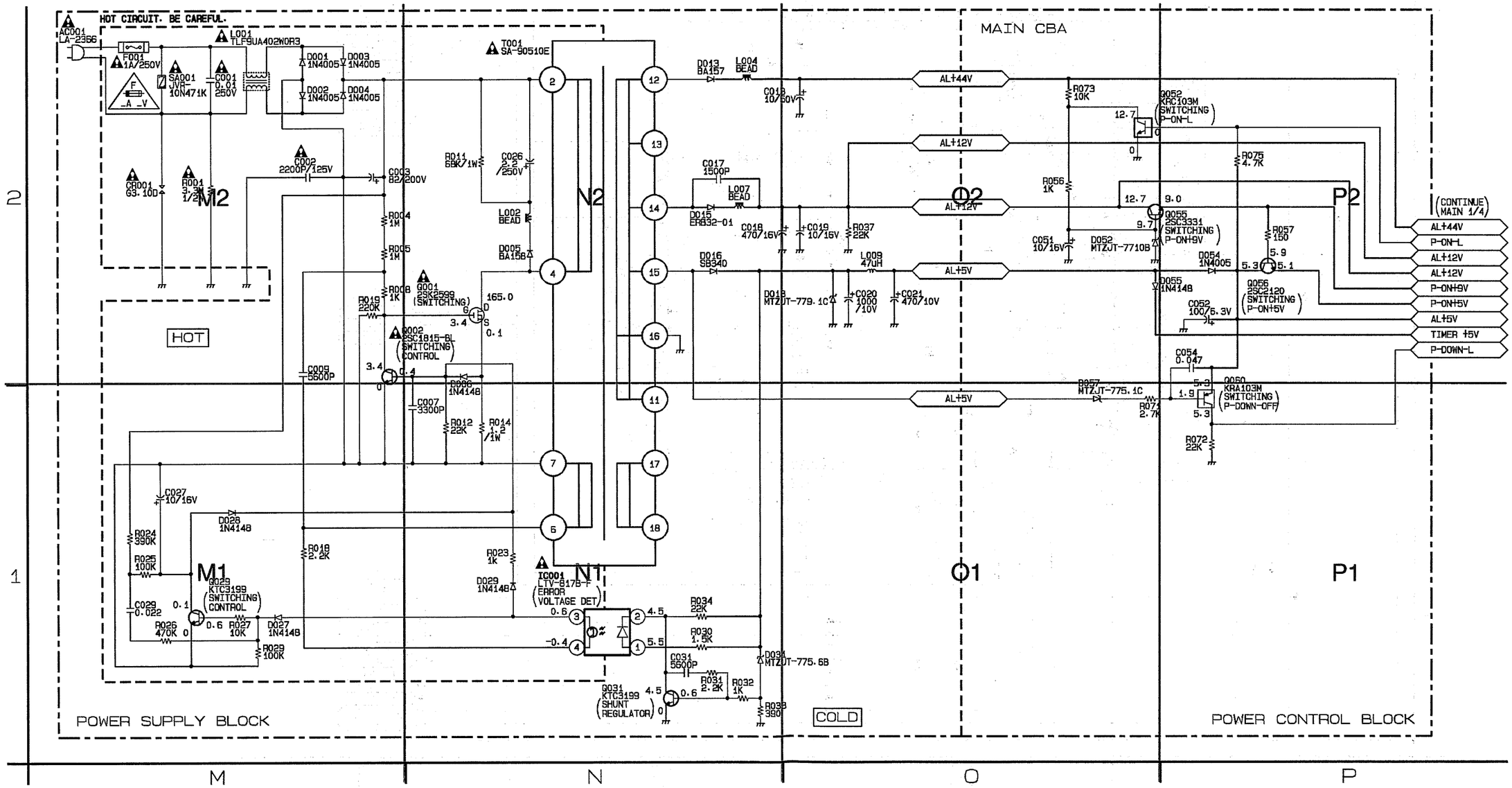
CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

Main 3/4 Schematic Diagram

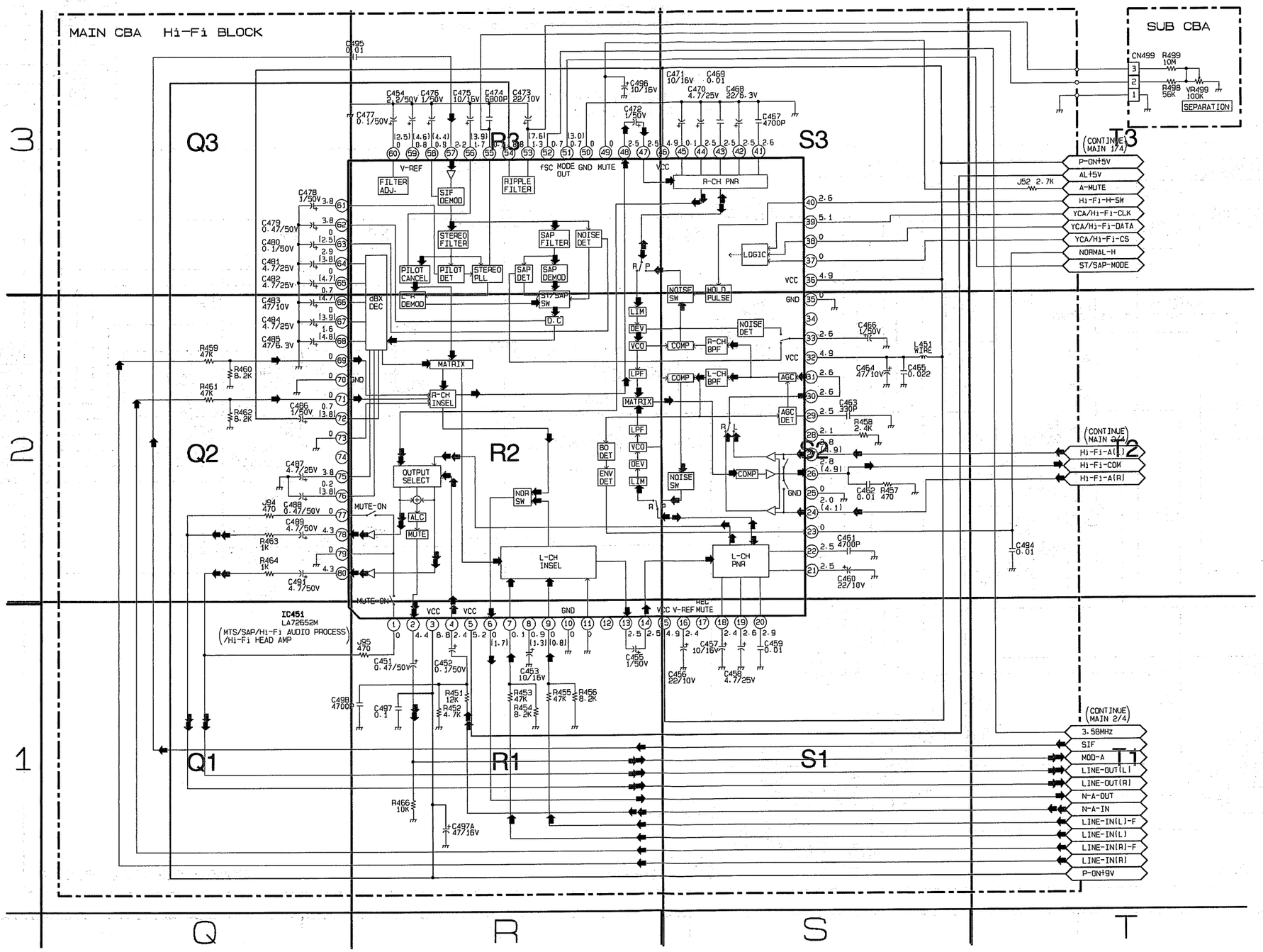
Ref.NO	Position
ICS	
IC001	N-1
TRANSISTORS	
Q001	N-2
Q002	M-2
Q029	M-1
Q031	N-1
Q052	O-2
Q055	O-2
Q056	P-2
Q060	P-1



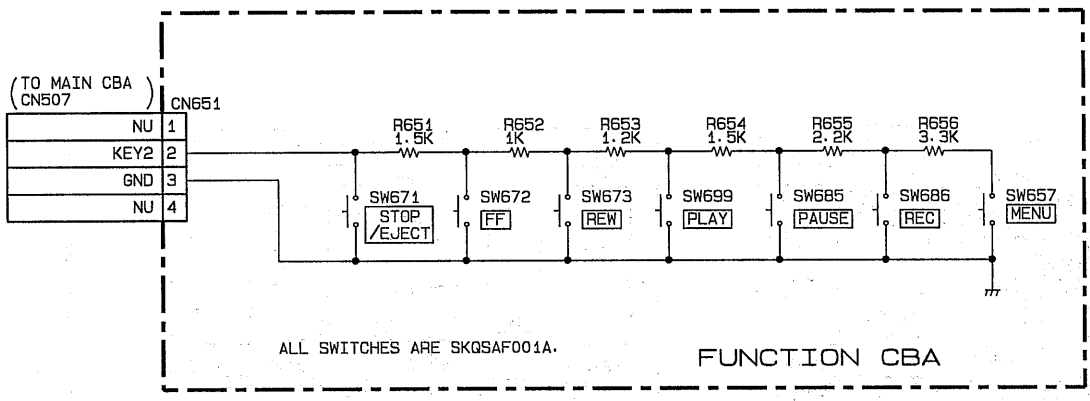
Main 4/4 Schematic Diagram

Audio(REC)

Audio(PLAY)

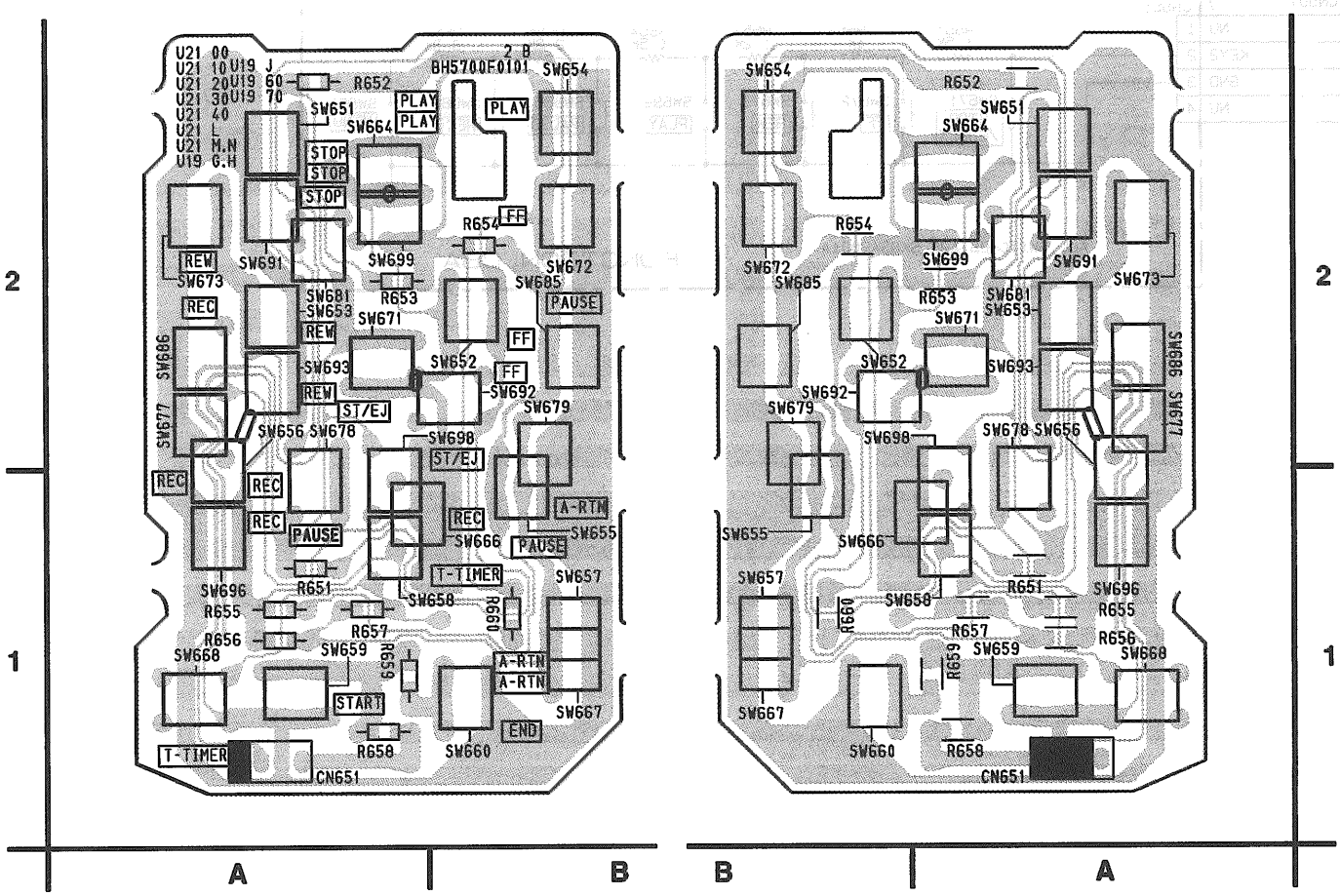


Function Schematic Diagram



Function CBA Top View

Function CBA Bottom View



BH5700F01012-B

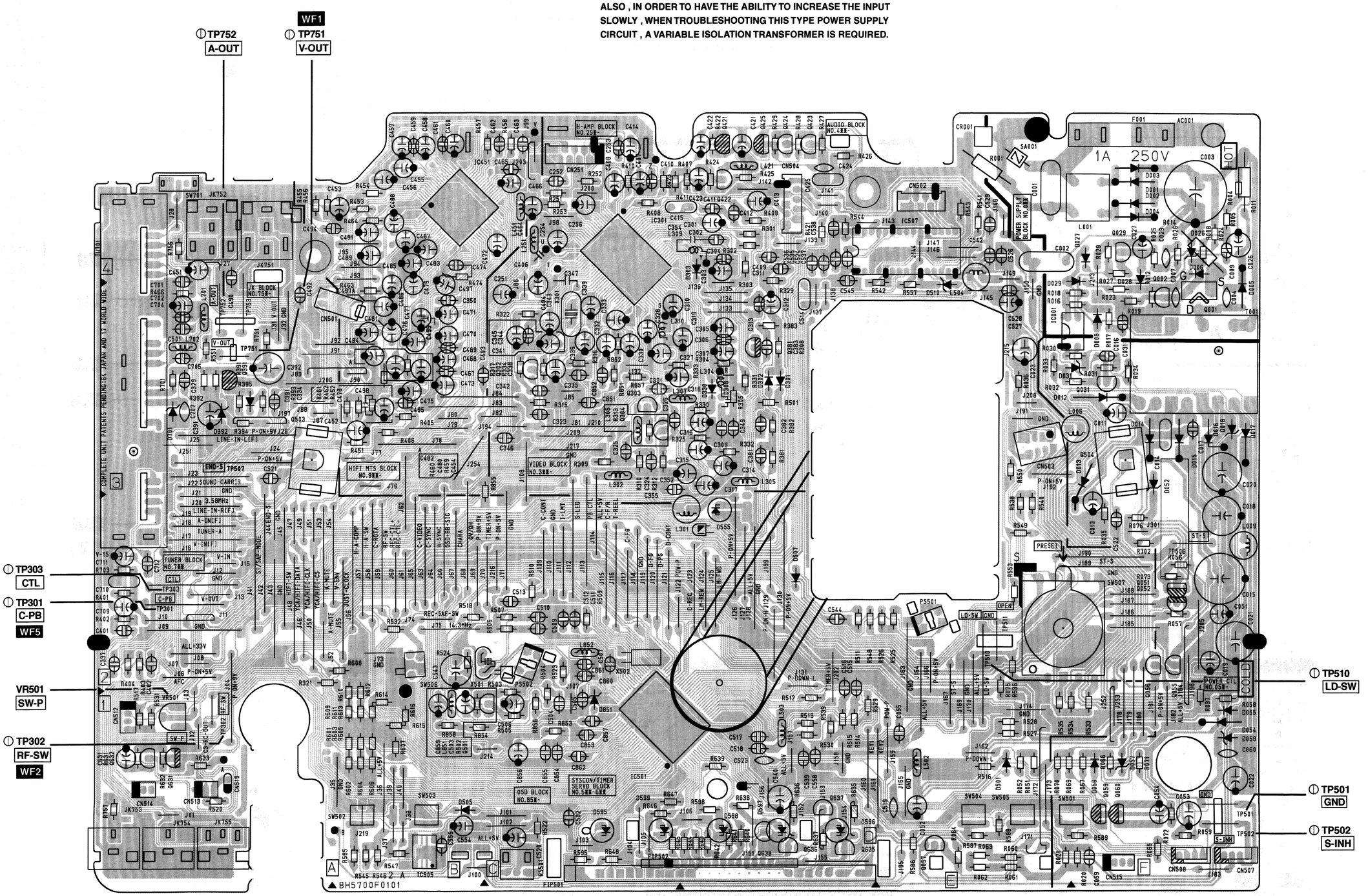
Main CBA Top View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT , AN ISOLATION TRANSFORMER MUST BE USED. ALSO , IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY , WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT , A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



Main CBA Bottom View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

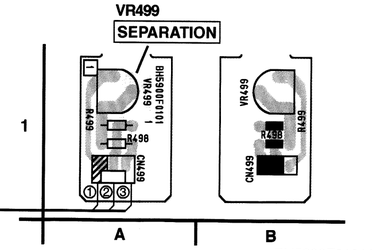
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

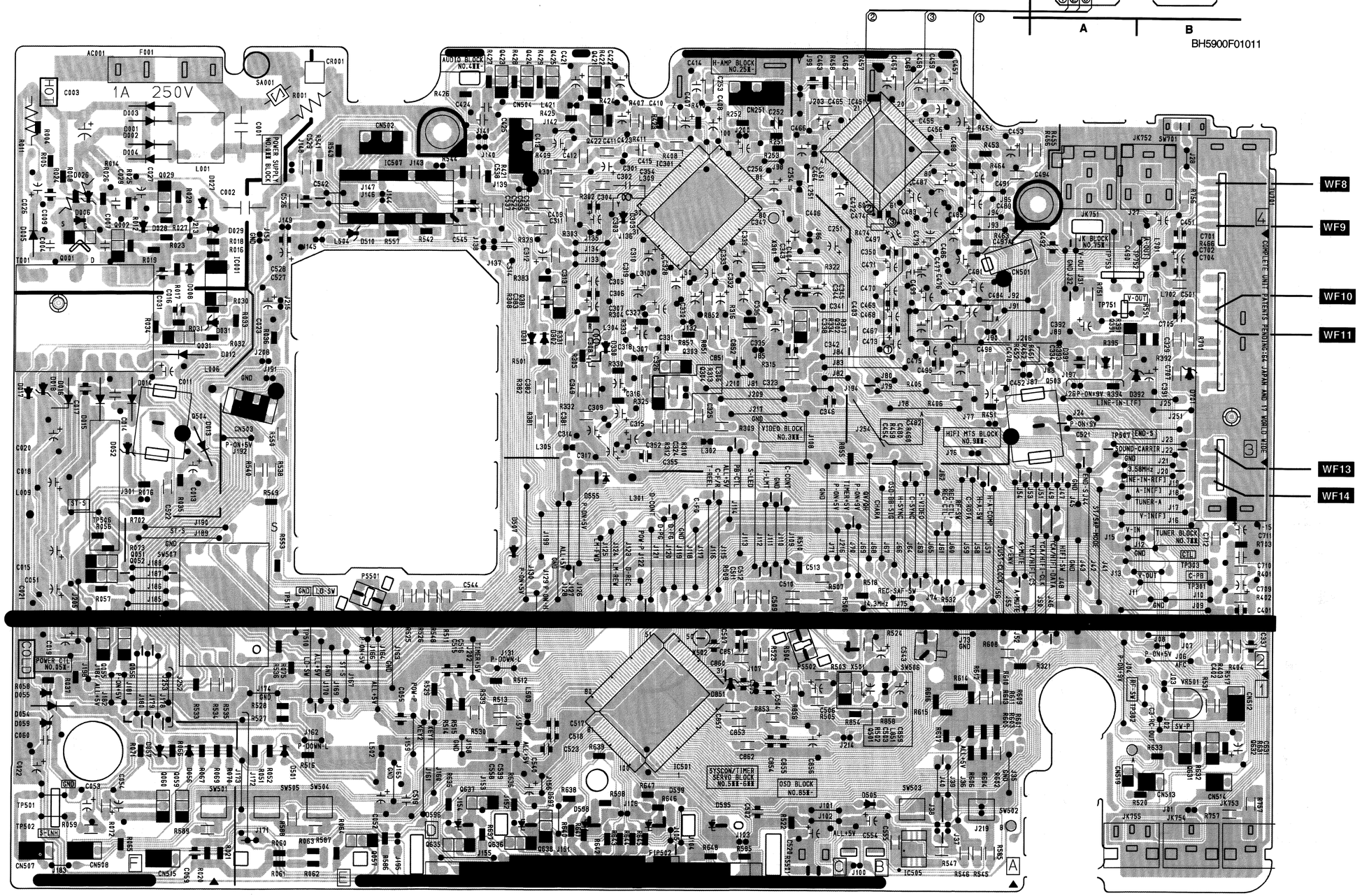
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT , AN ISOLATION TRANSFORMER MUST BE USED. ALSO , IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY , WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT , A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.

Sub CBA Top View

Sub CBA Bottom View



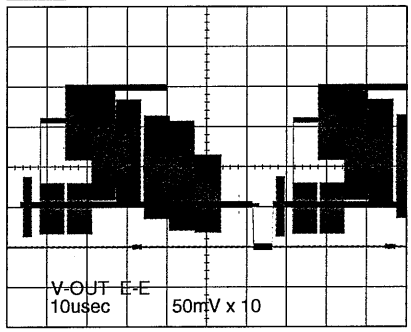


Main CBA

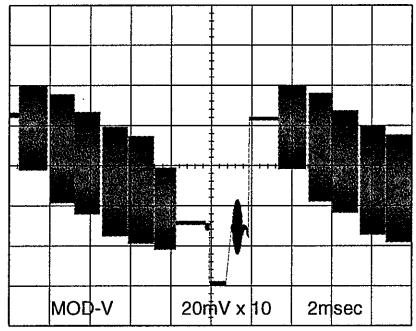
Ref.NO	Position
ICS	
IC001	F-3
IC301	C-4
IC501	C-1
IC507	E-4
TRANSISTORS	
Q001	F-3
Q002	F-3
Q029	F-4
Q031	F-3
Q052	F-2
Q055	F-1
Q056	F-1
Q060	F-1
Q302	C-3
Q303	C-3
Q304	C-3
Q391	A-3
Q421	D-4
Q422	D-4
Q423	D-4
Q424	D-4
Q425	D-4
Q501	B-1
Q503	A-3
Q504	F-3
CONNECTORS	
CN251	C-4
CN501	B-3
CN502	E-4
CN503	E-3
CN504	D-4
CN507	F-1
MISCELLANEOUS	
VR 501	A-1
TEST POINTS	
TP301	A-2
TP302	A-1
TP303	A-2
TP501	F-1
TP502	F-1
TP506	F-2
TP507	A-3
TP510	E-2
TP511	E-2
TP751	A-3
TP752	A-2

WAVEFORMS

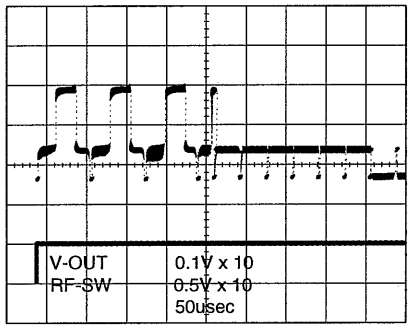
WF 1



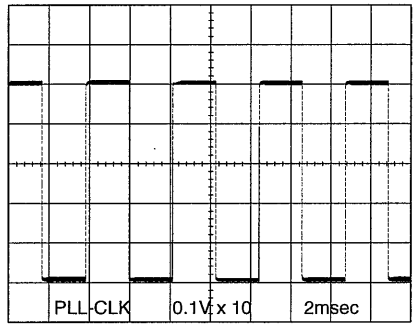
WF9



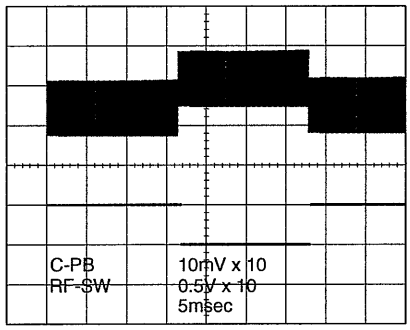
WF1 UPPER **WF2** LOWER



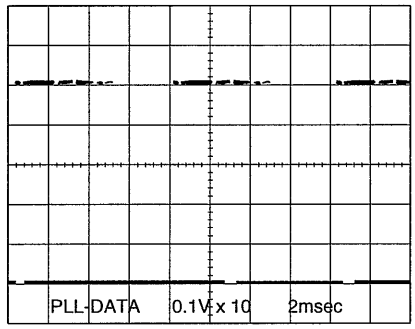
WF10



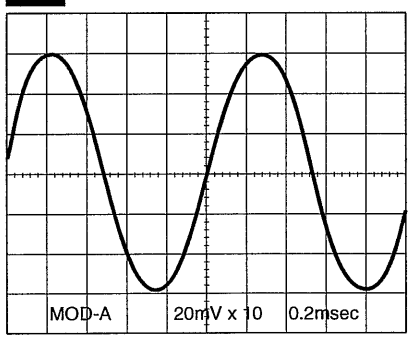
WF5



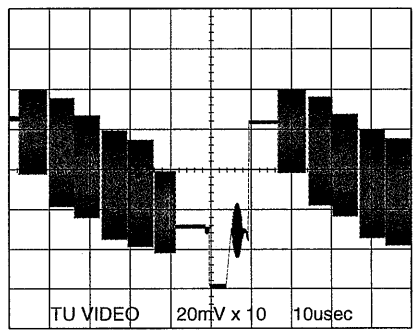
WF11



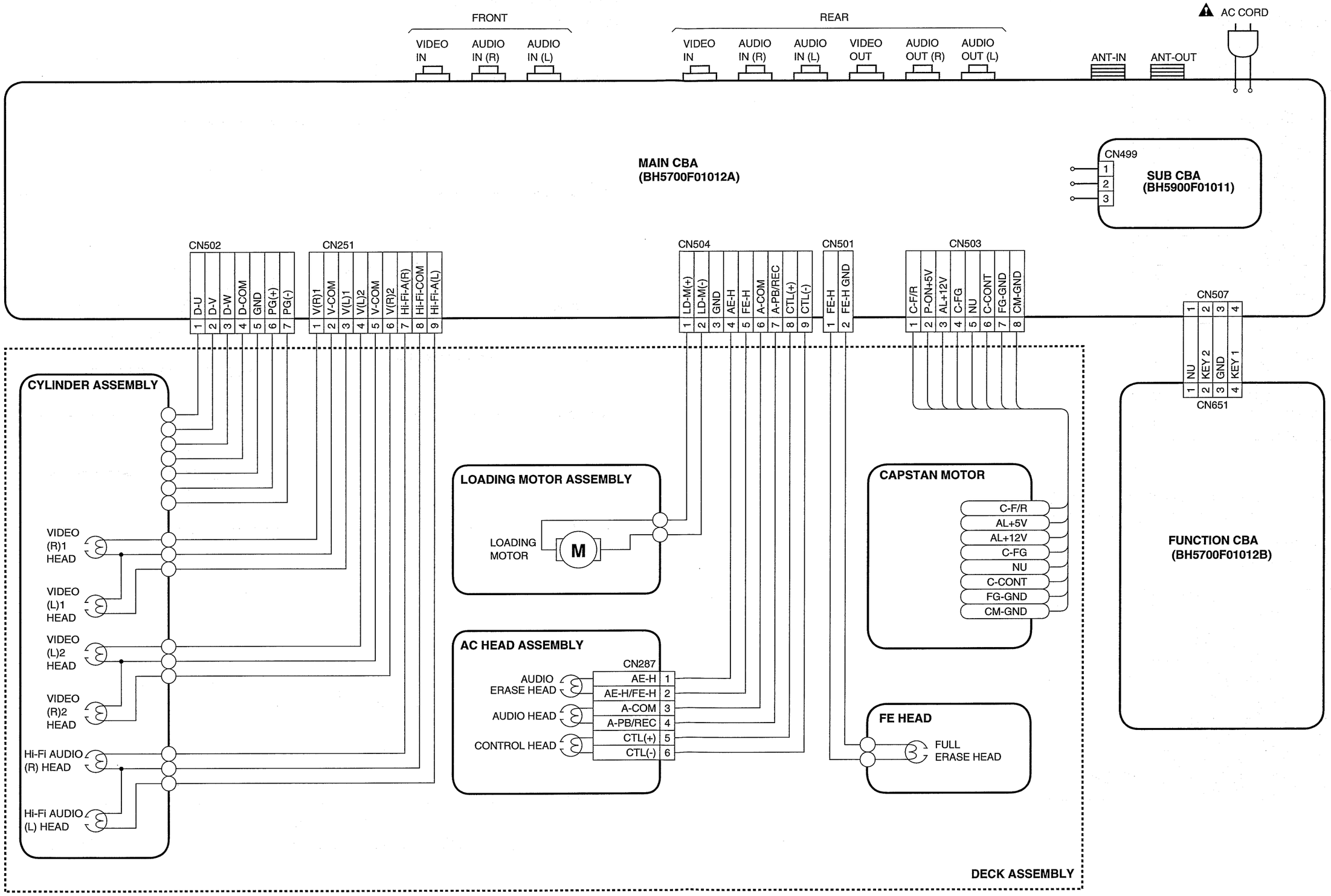
WF8



WF14



WIRING DIAGRAM



SYSTEM CONTROL TIMING CHARTS

Mode SW : LD-SW

LD-SW Position detection A/D Input voltage Limit (Calculated voltage)	Symbol
4.06V~4.69V (4.38V)	EJ
4.70V~5.00V (5.00V)	CL
0.00V~0.30V (0.00V)	SB
0.31V~1.20V (0.64V)	TL
1.21V~2.02V (1.72V)	LC
4.70V~5.00V (5.00V)	FB
3.35V~4.05V (2.17V)	SF
2.03V~2.60V (2.27V)	AU
1.21V~2.02V (1.80V)	AL
2.61V~3.34V (2.96V)	SS
4.70V~5.00V (5.00V)	GC
3.35V~4.05V (3.69V)	RS

Note:

EJ → RS : Loading FWD (LM-FWD "H", LM-REV "L")

RS → EJ : Loading REV (LM-FWD "L", LM-REV "H")

Stop (A) = Loading

Stop (B) = Unloading

Note :

Symbol	Loading Status
EJ	Eject
CL	Eject ~ REW Reel
SB	REW Reel ~ Stop(B)
TL	Stop(B) ~ Brake Cancel
LC	Loading Switching ~ Brake Cancel
FB	Brake Cancel
SF	~ Stop(A)
AU	Stop(A) ~ Play / REC
AL	Play / REC ~ Still / Slow
SS	Still / Slow ~ Capstan Reversal
GC	Capstan Reversal ~ RS (REW Search)
RS	RS (REW Search)

Still/Slow Control

Frame Advance Timing Chart

1) SP MODE

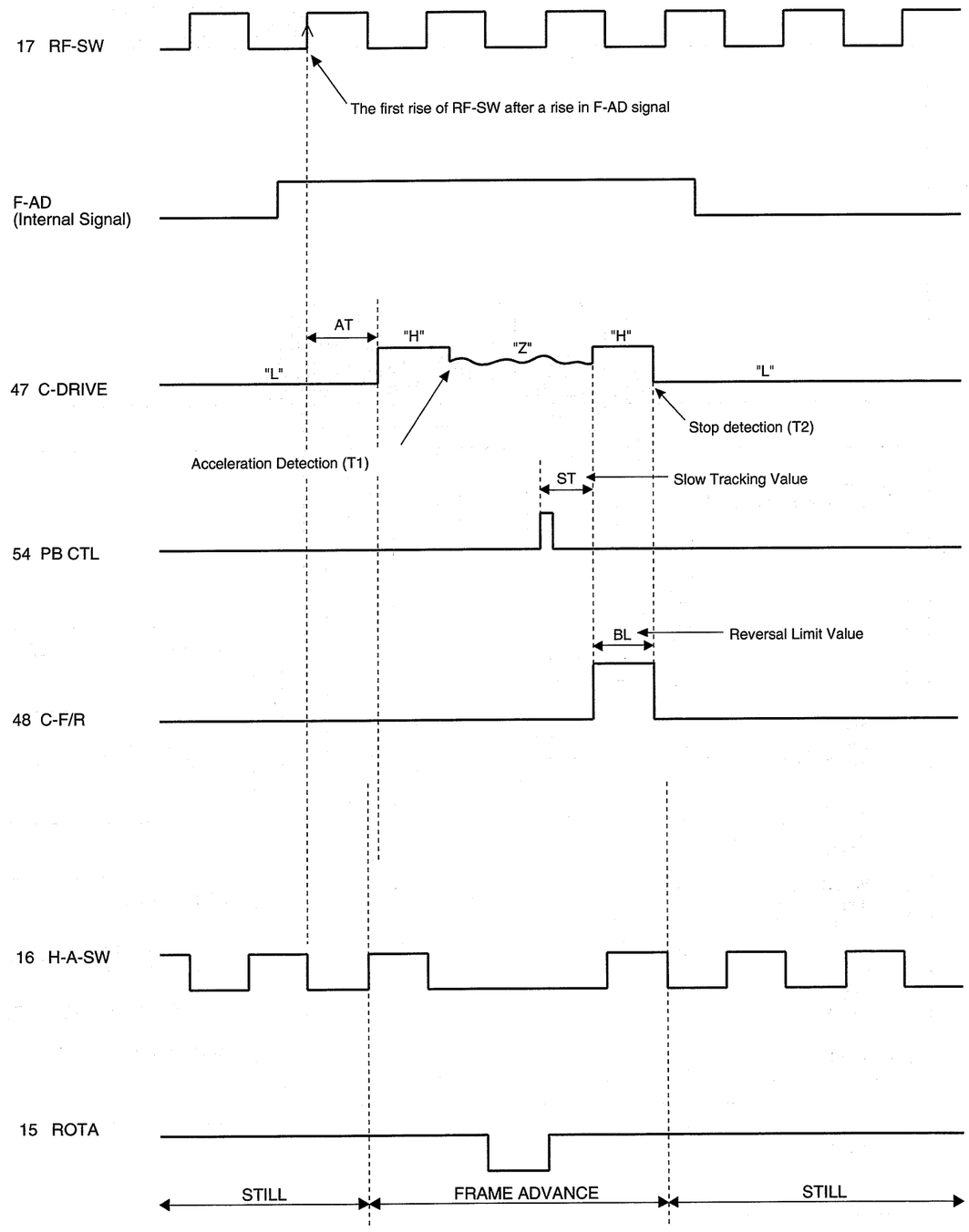


Fig.1

2) LP/SLP MODE

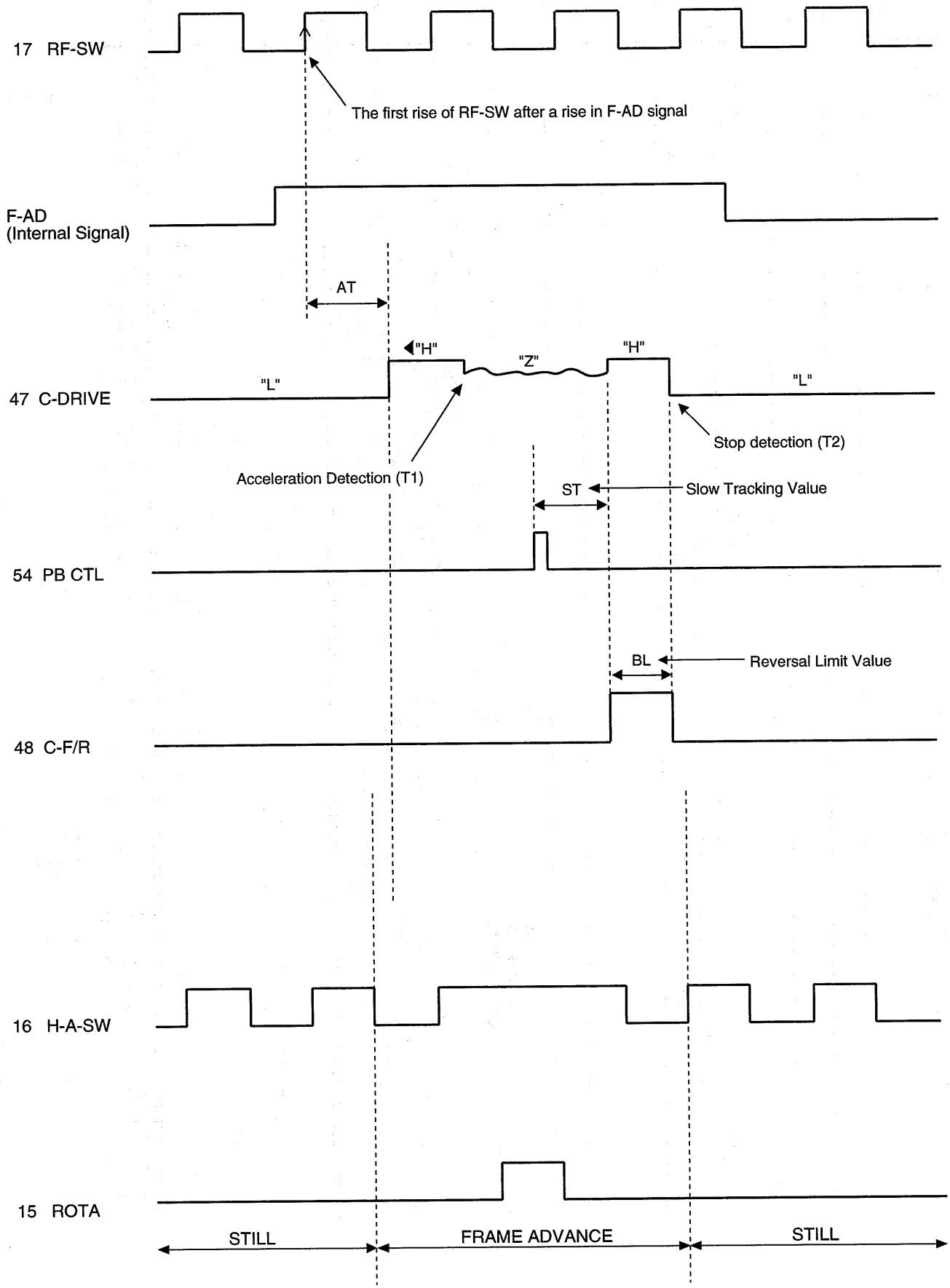


Fig.2

1. EJECT (POWER OFF) -> CASSETTE IN (POWER ON) -> STOP(B) -> STOP(A) -> PLAY -> RS -> FS -> PLAY -> STILL -> PLAY -> STOP(A)

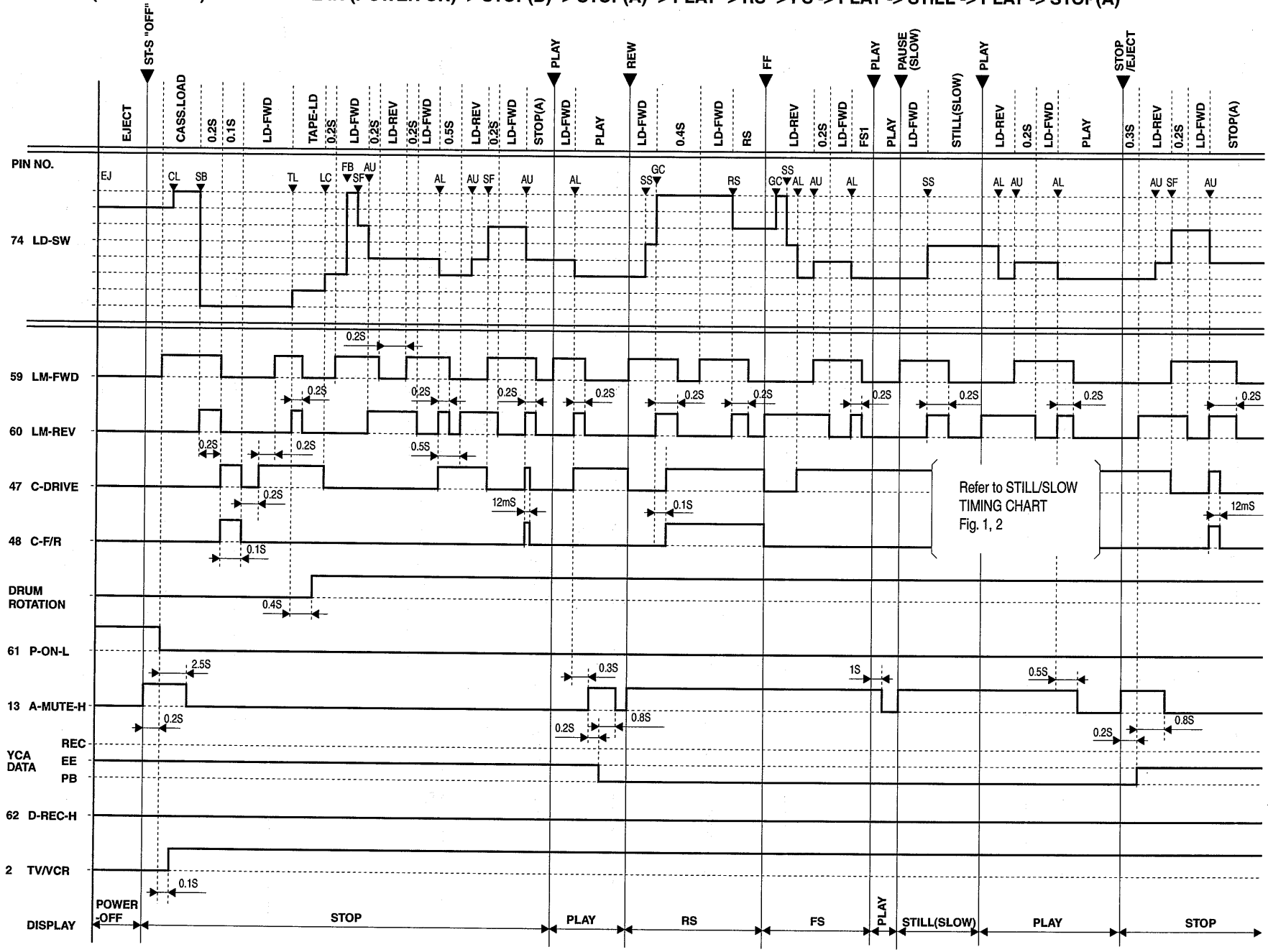


Fig.3

2. STOP(A) -> FF -> STOP(A) -> REW -> STOP(A) -> REC -> PAUSE -> PAUSE or REC -> STOP(A) -> EJECT

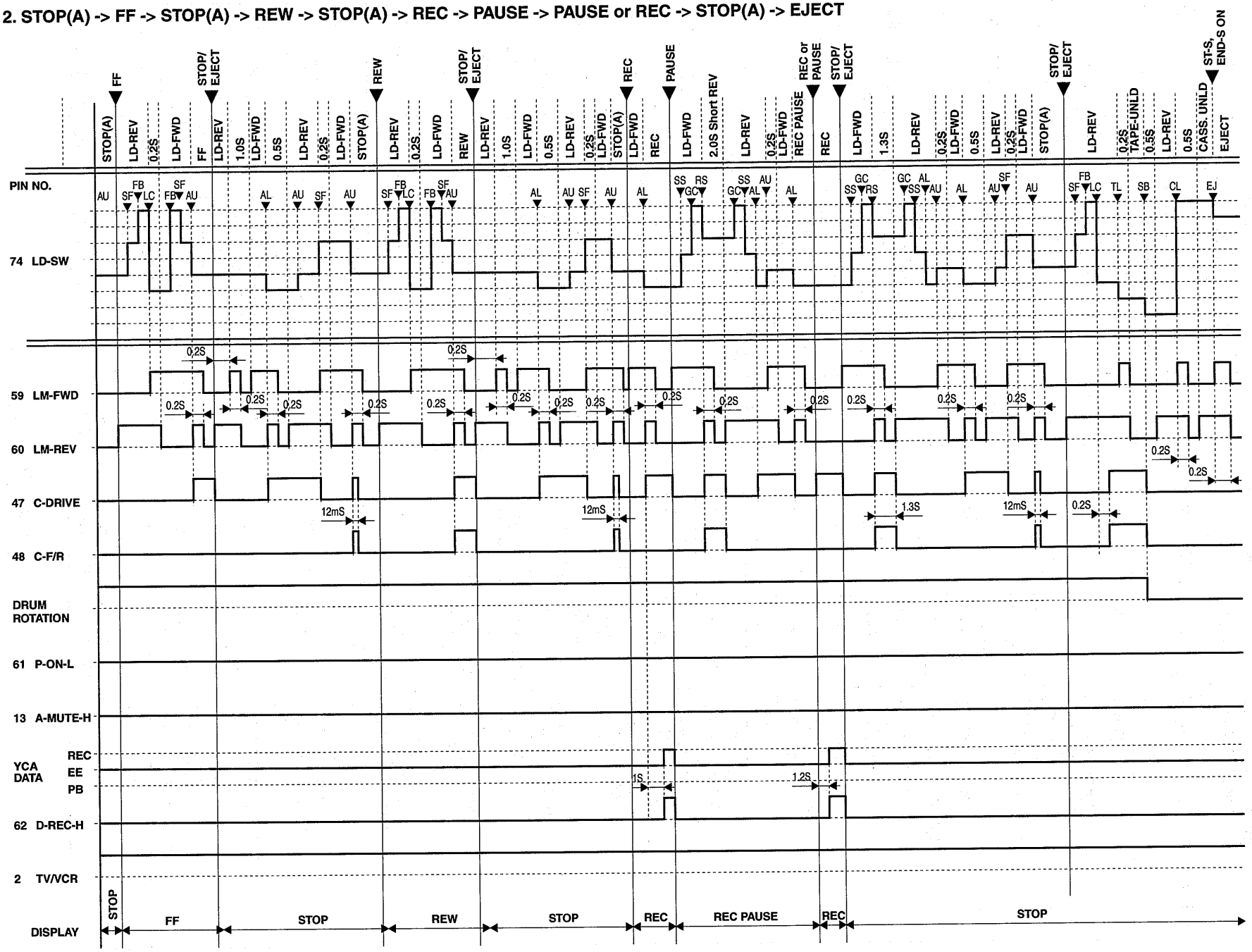


Fig.4

TI_4H_FN

1-12-5

IC PIN FUNCTION

IC501 (SERVO / SYSTEM CONTROL IC)

"H" ≥ 4.5V, "L" ≤ 1.0V

Pin No.	IN/ OUT	Signal Name	Function	Active Level
1	IN	REMOC-ON-IN	Remote Control Sensor	L
2	OUT	TV/VCR	RF Conv. ON/OFF Signal (TV="L"/ VCR="H")	H/L
3	OUT	V-MUTE	Video Mute Signal (Mute= " L ")	L
4	–	N.U.	Not Used	–
5	–	N.U.	Not Used	–
6	–	N.U.	Not Used	–
7	–	N.U.	Pull Up	–
8	OUT	YCA/ HiFi-CS	YCA/HiFi IC Control Chip Select	H
9	IN/ OUT	I²C BUS-DATA	I²CBUS Data Input/Output	H/L
10	OUT	I²C BUS-CLK	I²CBUS Clock Output	H/L
11	OUT	YCA/ HiFi-CLK	YCA/HiFi IC Control Clock Output	H/L
12	OUT	YCA/ HiFi-DATA	YCA/HiFi IC Control Data Output	H/L
13	OUT	A-MUTE	Audio Mute Control Signal (Mute=" H ")	H
14	IN	H-A-COMP	Head Amp Comparator Signal	H/L
15	OUT	C-ROTA	Color Phase Rotary Changeover Signal	H/L
16	OUT	H-A-SW	Video Head Amp Switching Pulse	H/L
17	OUT	RF-SW	Video Head Switching Pulse	H/L
18	OUT	HiFi-H-SW	HiFi-Head Switching	H/L
19	OUT	REC-CTL(+)	Record Control Signal (+)	H/L
20	OUT	REC-CTL(-)	Record Control Signal (-)	H/L
21	IN	C-SYNC	Composite Synchronized Pulse	PULSE
22	--	GND	GND	--
23	IN	14.31848 Mhz-IN	Clock for OSD (4fsc:14.31818MHz) Input	--
24	--	OSDVss	OSDVss	--
25	--	N.U.	Not Used	--
26	IN	C-VIDEO-IN	Composite VIDEO Signal Input (for Slicer)	--
27	--	VHOLD	Condenser Connected Terminal (Skucer)	--
28	--	HLF	LPF Connected Terminal (Sliser)	--
29	--	GND	GND	--
30	OUT	OSD-BB-OUT	Composit Video Signal Output (Blue Back)	--
31	OUT	OSD-CHARA-OUT	Charactor Output (Superimpose)	--
32	--	OSDVcc	OSDVcc	--
33	OUT	D-VSYNC-OUT	Dummy V-sync Output	H/Hi-z
34	IN	RESET	System Reset Signal (Reset= "L")	L
35	–	OSCIN	Clock Input for Letter size	–
36	–	OSCOUT	Clock Input for Letter size	–
37	–	Vcc	Vcc	–
38	–	XIN	Main Clock 14.31818 MHz	–
39	–	Xout	Main Clock	–
40	–	Vss	Vss(GND)	–
41	–	XC IN	Sub Clock 32 kHz	–
42	–	XC OUT	Sub Clock 32 kHz	–
43	IN	CLKSEL (GND)	Clock Select	L
44	IN	REC-SAF-SW	Recording Safety SW Detect (With Record tab="L"/With out Record tab="H")	H/L
45	--	N.U.	Not Used	H
46	--	N.U.	Not Used	--
47	OUT	C-DRIVE	Capstan Motor Drive Signal	H/Hi-Z
48	OUT	C-F/R	Capstan Motor FWD/REV Control Signal (FWD="L"/ REV="H")	H/L

Pin No.	IN/ OUT	Signal Name	Function	Active Level
49	IN	T-REEL	Take Up Reel Rotation Signal	PULSE
50	–	N.U.	Not Used	–
51	IN	C-FG	Capstan Motor Rotation Detection Pulse	PULSE
52	IN	D-FG	Drum Motor Rotation Detection Pulse	PULSE
53	IN	D-PG	Drum Motor Pulse Generator	PULSE
54	IN	PB-CTL	Playback Control Signal	PULSE
55	OUT	C-CONT	Capstan Motor Control Signal	PWM
56	OUT	D-CONT	Drum Motor Control Signal	PWM
57	–	N.U.	Not Used	–
58	–	N.U.	Not Used	–
59	OUT	LM-FWD	Loading Motor FWD Output	H
60	OUT	LM-REV	Loading Motor REV Output	H
61	OUT	P-ON-L	Power On Signal to Low	L
62	OUT	D-REC	Delayed Record Signal	H
63	IN	P-DOWN-L	Power Voltage Down Detector Signal	L
64	–	N.U.	Not Used	–
65	–	N.U.	Not Used	–
66	IN	HiFi/ NORIN	Audio Input Selection On PlayBack HiFi="L", Normal="H"	H/L
67	IN	ST/ SAP IN	Receiving Judgement Ste reo/SAP	A/D
68	IN	END-S	Tape End Position Detect Signal	A/D
69	IN	AFC	Automatic Frequency Control Signal	A/D
70	IN	V-ENV	Video Envelope Signal	A/D
71	IN	PG-DELAY	Video Head Switching Pulse Signal Adjusted Voltage	A/D
72	IN	KEY IN-2	A/D Key Data Signal	A/D
73	IN	KEY IN-1	A/D Key Data Signal	A/D

Pin No.	IN/ OUT	Signal Name	Function	Active Level
74	IN	LD-SW	Deck Mode Position Detect Signal	A/D
75	IN	ST-S	Tape Start Position Detect Signal	A/D
76	--	AVcc	A/D Converter Power on/Standard Voltage Input	--
77	--	FLDVcc	FLDVcc	--
78	--	FLD VP	GND	--
79	--	N.U.	Not Used	--
80	--	N.U.	Not Used	--
81	--	N.U.	Not Used	--
82	--	N.U.	Not Used	--
83	--	N.U.	Not Used	--
84	--	N.U.	Not Used	--
85	--	N.U.	Not Used	--
86	--	N.U.	Not Used	--
87	OUT	REC LED	REC Mode LED Indicator	H/L
88	OUT	TIMER LED	TIMER Mode LED Indicator	H/L
89	--	N.U.	Not Used	--
90	--	N.U.	Not Used	--
91	--	N.U.	Not Used	--
92	OUT	TAPE IN LED	Tape IN LED Indicater	H/L
93		N.U.	Not Used	--
94	--	N.U.	Not Used	--
95	--	N.U.	Not Used	--
96	--	N.U.	Not Used	--
97	OUT	VCR LED	TV/VCR LED Indicate	H/L
98	--	N.U.	Not Used	--
99	–	N.U.	Not Used	–
100	–	N.U.	Not Used	–

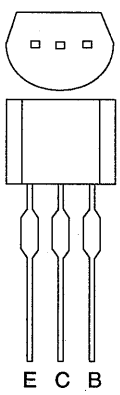
Notes:

Abbreviation for Active Level:

PWM ---------- Pulse Wide Modulation

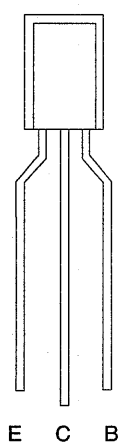
A/D ---------- Analog - Digital Converter

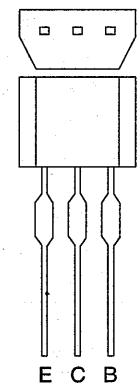
LEAD IDENTIFICATIONS



2SC3331 (T, U)
2SC2120 (Y)
2SA1015-GR (TPE2)
2SA1015-Y (TPE2)
2SC1815-Y (TPE2)
2SC1815-BL (TPE2)
KTC3203 (Y)
KTA1266 (Y, GR)
2SC1815-GR (TPE2)

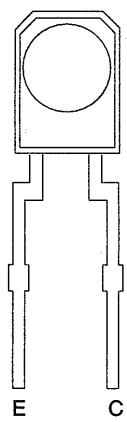
2SC536NF(NG)-NPA-AT



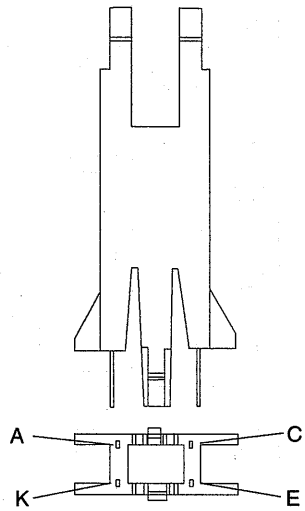


DTC124ESA
DTA124ESA
2SC2058(Q)
2SA933AS(S)
2SC2785 (J, H, F, K)
KRC103M
KTC3199 (Y, GR, BL)
2SC1740S(Q,R)
BA1F4M-T
KRA103M

ST-304L-(A,B,C,D)



RPI-302



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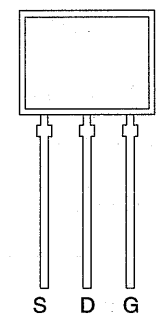

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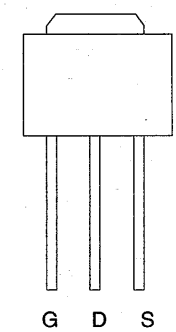
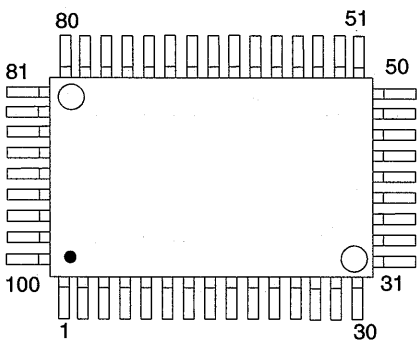


LA71080M
QSMAA0RMB006



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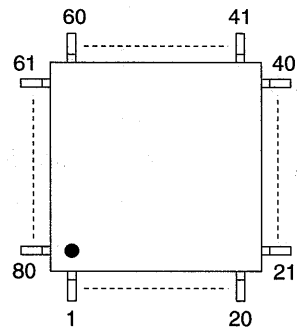
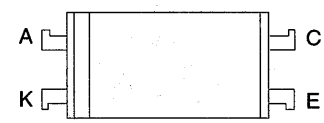
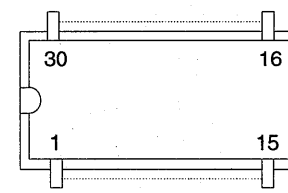


LTV-817C-F
LTV-817B-F
PC-17T1



LB11880



Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
S: Source
G: Gate
D: Drain

DECK MECHANISM SECTION

VIDEO CASSETTE RECORDER

SRV206

Sec. 2: Deck Mechanism Section

- **Standard Maintenance**
- **Alignment for Mechanism**
- **Disassembly/Assembly of Mechanism**
- **Front Loading Assembly**
- **Alignment Procedures of Mechanism**

TABLE OF CONTENTS

Standard Maintenance 2-1-1
Service Fixtures and Tools 2-2-1
Mechanical Alignment Procedures 2-3-1
Disassembly / Assembly Procedures of Deck Mechanism 2-4-1
Front Loading Assembly 2-4-8
Alignment Procedures of Mechanism 2-4-10

STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ○: Check ●: Change

Deck		Periodic Service Schedule			
Ref. No.	Part Name	1,000 H	2,000 H	3,000 H	4,000 H
B2	Cylinder Assembly	○	●	○	●
B3	Loading Motor Assembly			●	
B8	Pulley Assembly		●		●
B27	Tension Lever Sub Assembly		●		●
B31	AC Head Assembly			●	
B32, B339	Reel T Assembly, Reel S Assembly			●	
B37	Capstan Motor		●		●
B52	Capstan Belt		●		●
*B73	FE Head CBA			●	
B133	Idler Assembly		●		●
B410	Pinch Arm (A) Assembly		●		●
B414	Main Brake S Assembly		●		●
B416	Main Brake T Sub Assembly		●		●
B525	Loading Belt (B)		●		●

Notes:

1. Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / Audio Control Head / Full Erase Head) using 90% Isopropyl Alcohol.
2. After cleaning the parts, do all DECK ADJUSTMENTS.
3. For the reference numbers listed above, refer to Deck Exploded Views.

   * B73 ------ VCR Model only

Cleaning

Cleaning of Video Head

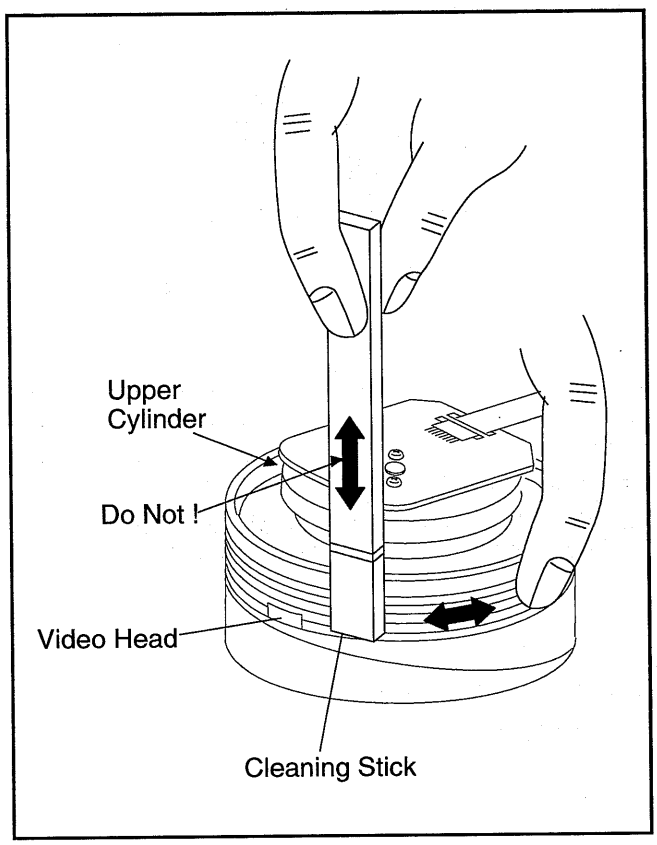
Clean the head with a head cleaning stick or chamois cloth.

Procedure

1. Remove the top cabinet.
2. Put on a glove (thin type) to avoid touching the upper and lower drum with your bare hand.
3. Put a few drops of 90% Isopropyl alcohol on the head cleaning stick or on the chamois cloth and, by slightly pressing it against the head tip, turn the upper drum to the right and to the left.

Notes:

1. The video head surface is made of very hard material, but since it is very thin, avoid cleaning it vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit.
3. Do not reuse a stained head cleaning stick or a stained chamois cloth.



Cleaning of Audio Control Head

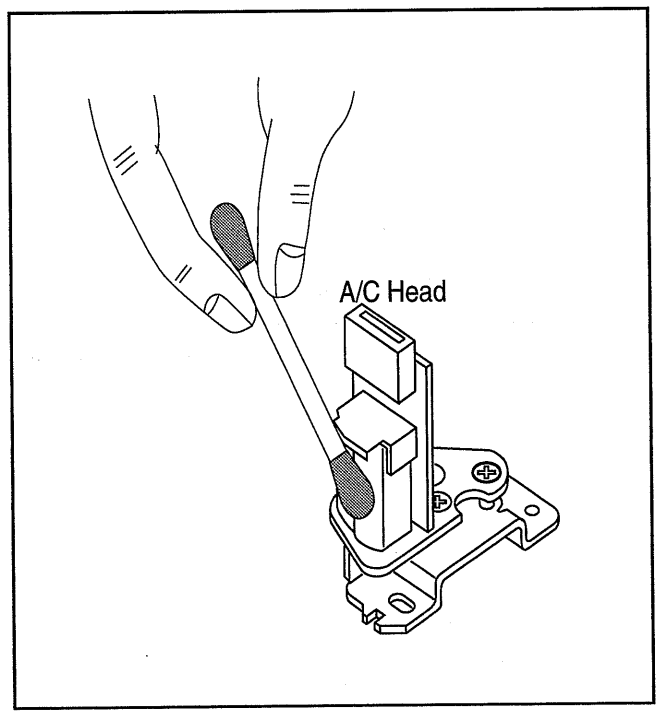
Clean the head with a cotton swab.

Procedure

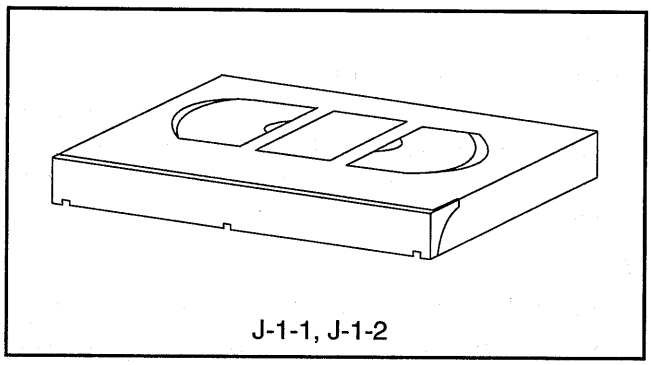
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

Notes:

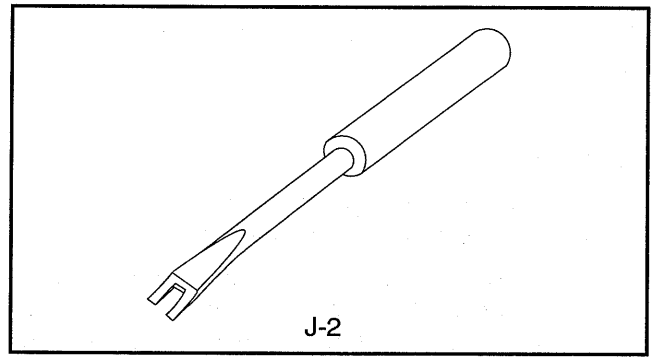
1. Avoid cleaning the audio control head vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



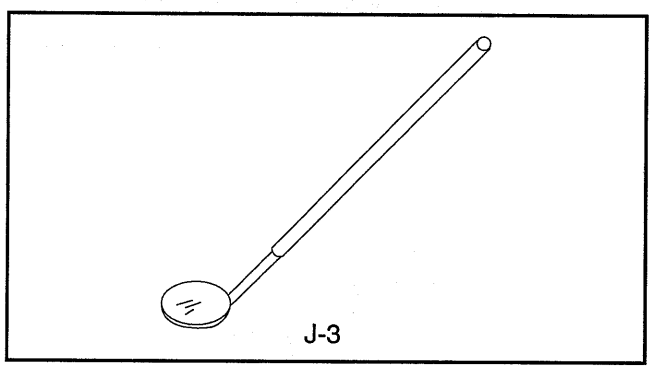
SERVICE FIXTURE AND TOOLS



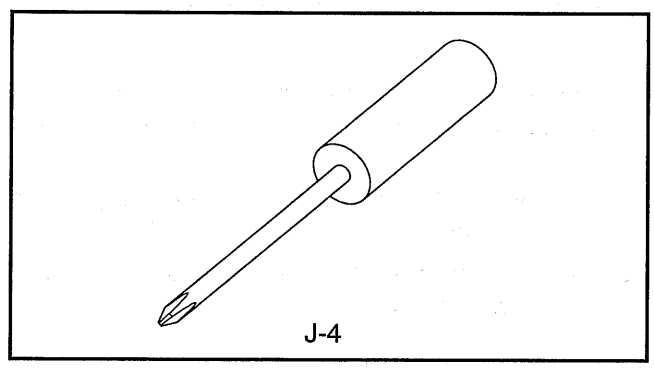
J-1-1, J-1-2



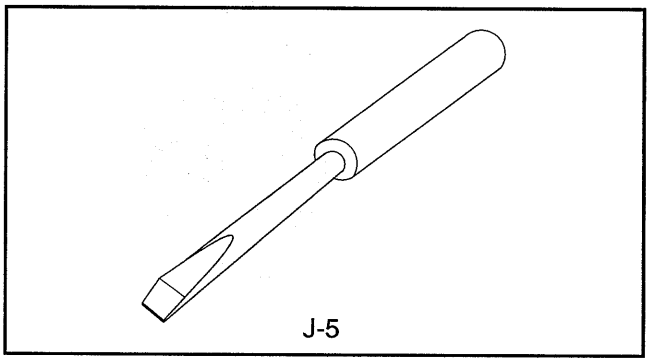
J-2



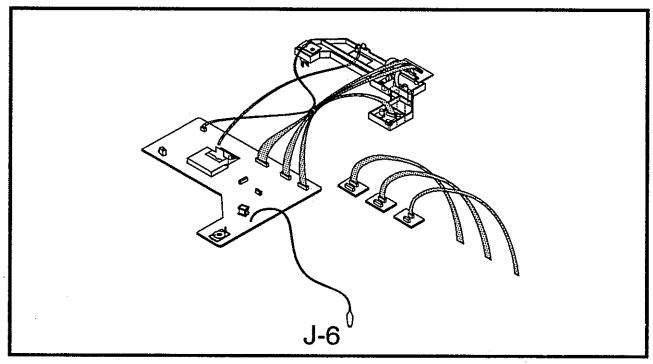
J-3



J-4



J-5



J-6

Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	FL8A	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape	FL8N (2Head only) FL8NW (4Head only)	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj.Screwdriver	FSJ-0006	Guide Roller
J-3	Mirror	FSJ-0004	Tape Transportation Check
J-4	Azimuth Adj.Screwdriver +	Available Locally	A/C Head Height
J-5	X Value Adj.Screwdriver -	Available Locally	X Value
J-6	U21 Deck Extension Cable	N1201XA	All Mechanical and Electrical Adjustments

Note:
Before starting any adjustment, take the Deck Assembly out of the cabinet and use J-6 to connect the Deck Assembly with the Main CBA.

MECHANICAL ALIGNMENT PROCEDURES

Explanation of alignment for the tape to correctly run starts on the next page. Refer to the information below on this page if a tape gets stuck, for example, in the mechanism due to some electrical trouble of the unit.

Service Information

A. Method for Manual Tape Loading/Unloading

To load a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Cover and Front Assembly.
3. Insert a cassette tape. Though the tape will not be automatically loaded, make sure that the cassette tape is all the way in at the inlet of the Cassette Holder. To confirm this, lightly push the cassette tape further in and see if the tape comes back out, by a spring motion, just as much as you have pushed in.
4. Turn the LDG Belt (B) in the appropriate direction shown in Fig. M1 until the First Gear starts turning. Stop turning the LDG Belt (B). Then, turn the First Gear in the appropriate direction continuously. However, movement of the Cam Gear will be very slow. Allow a minute or two to complete this task.

To unload a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Cover and Front Assembly.
3. Make sure that the Moving guide assemblies are in the Eject Position. When the Moving guide assemblies are in the Loading Position, go to step 4. When the Moving guide assemblies are in the Eject Position, go to step 6.
4. First, turn the LDG Belt (B) in the appropriate direction shown in Fig. M1 until the First Gear starts turning.
5. Stop turning the LDG Belt (B) immediately after the First Gear starts turning.
6. Turn the First Gear in the appropriate direction until Moving guide assemblies come to the Eject Position. Stop turning when the assemblies begin clicking or can not be moved further. However, the tape will be left wound around the cylinder.
7. Turn the LDG Belt (B) in the appropriate direction continuously, and the cassette tape will be ejected. As stated, movement of the Cam Gear will be very slow. Allow a minute or two to complete this task.

B. Method to place the Cassette Holder in the tape-loaded position without a cassette tape

1. Disconnect the AC Plug.
2. Remove the Top Cover and Front Assembly.
3. Turn the LDG Belt (B) in the appropriate direction shown in Fig. M1. Release the locking tabs shown in Fig. M1 and continue turning the LDG Belt (B) until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.

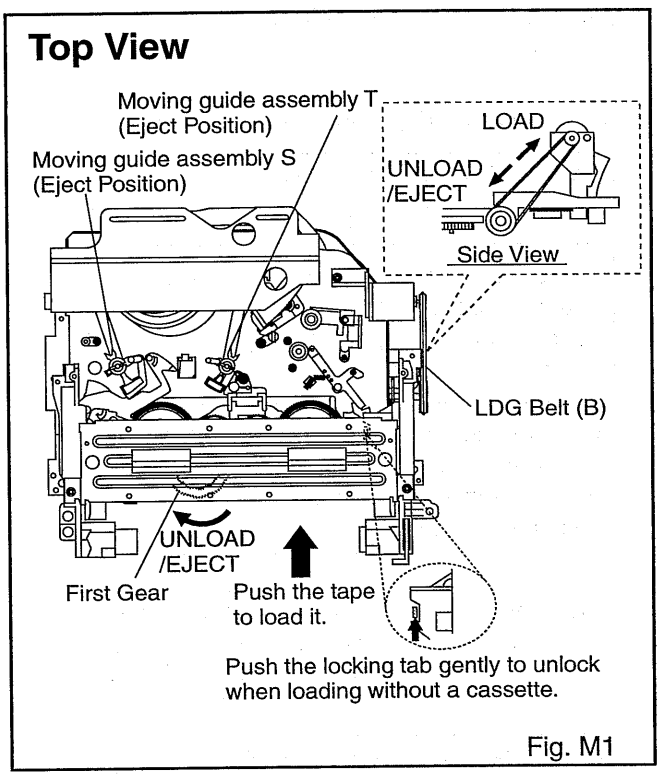


Fig. M1

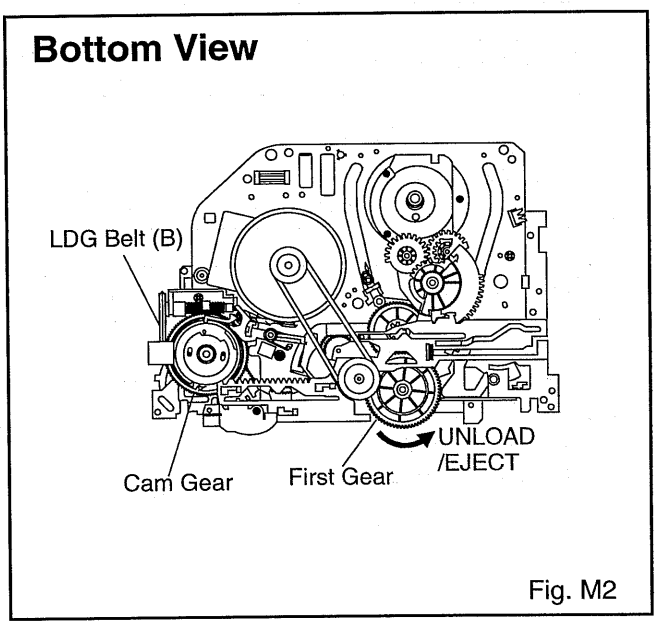


Fig. M2

1. Tape Interchangeability Alignment

Note:

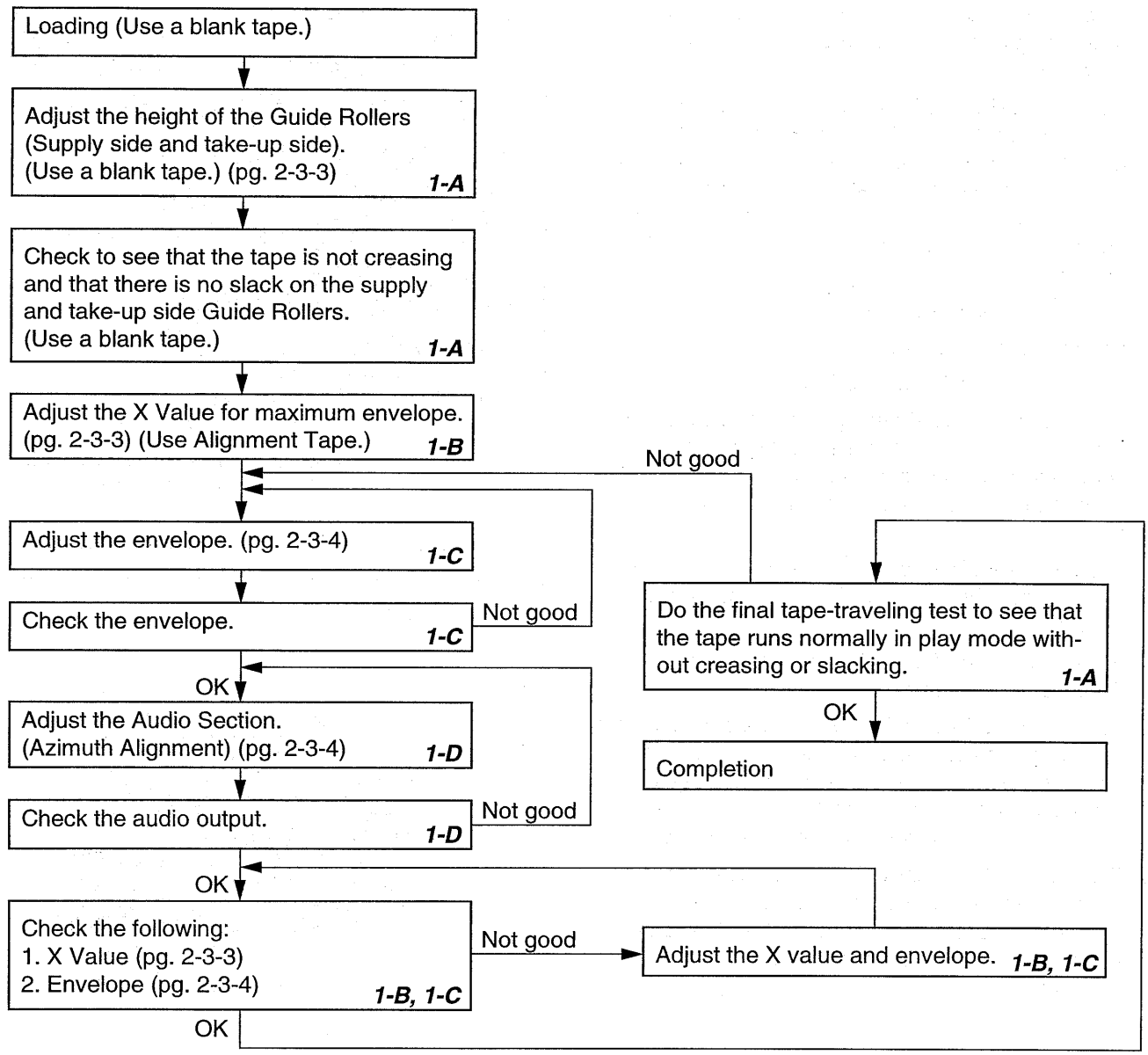
To do these alignment procedures, make sure that the Tracking Control Circuit is set to the center position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)

Equipment required:

Dual Trace Oscilloscope
VHS Alignment Tape (FL8NW)
Guide Roller Adj. Screwdriver
X-Value Adj. Screwdriver

Note: Before starting this Mechanical Alignment, do all Electrical Adjustment procedures.

Flowchart of Alignment for tape traveling


Loading (Use a blank tape.)
Adjust the height of the Guide Rollers (Supply side and take-up side). (Use a blank tape.) (pg. 2-3-3) 1-A
Check to see that the tape is not creasing and that there is no slack on the supply and take-up side Guide Rollers. (Use a blank tape.) 1-A
Adjust the X Value for maximum envelope. (pg. 2-3-3) (Use Alignment Tape.) 1-B
Not good
Adjust the envelope. (pg. 2-3-4) 1-C
Check the envelope. 1-C
Not good
OK
Adjust the Audio Section. (Azimuth Alignment) (pg. 2-3-4) 1-D
Check the audio output. 1-D
Not good
OK
Check the following:
1. X Value (pg. 2-3-3)
2. Envelope (pg. 2-3-4) 1-B, 1-C
Not good
Adjust the X value and envelope. 1-B, 1-C
OK
Do the final tape-traveling test to see that the tape runs normally in play mode without creasing or slacking. 1-A
OK
Completion

1-A. Preliminary/Final Checking and Alignment of Tape Path

Purpose:

To make sure that the tape path is well stabilized.

Symptom of Misalignment:

If the tape path is unstable, the tape will be damaged.

Note: Do not use an Alignment Tape for this procedure. If the unit is not correctly aligned, the tape may be damaged.

1. Play back a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3] with a Guide Roller Adj. Screwdriver. (Refer to Fig. M3 and M5.)
   Note: Beneath each Guide Roller, there is a small screw. (Refer to Fig. M5.) This screw works to apply adequate torque to the shaft of each Guide Roller so that the Guide Roller turns properly. Even when adjusting the height of the Guide Roller(s), do not touch these two small screws.
3. Check to see that the tape runs without creasing at Take-up Guide Post [4] or without snaking between Guide Roller [3] and AC Head. (Fig. M3 and M5)
4. If creasing or snaking is apparent, adjust the Tilt Adj. Screw of the AC Head. (Fig. M6)

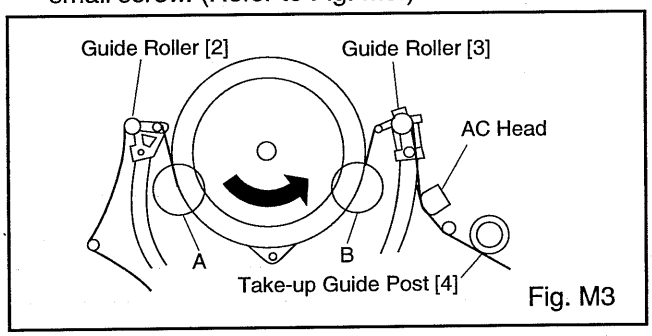


Fig. M3

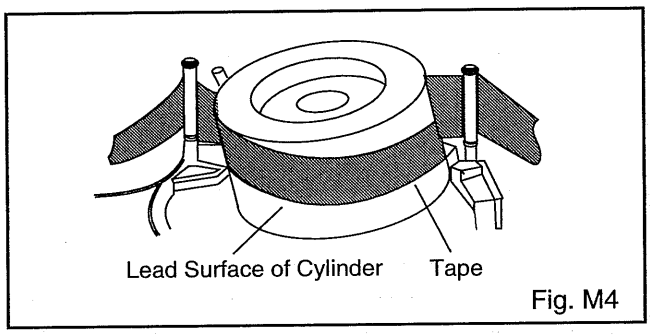


Fig. M4

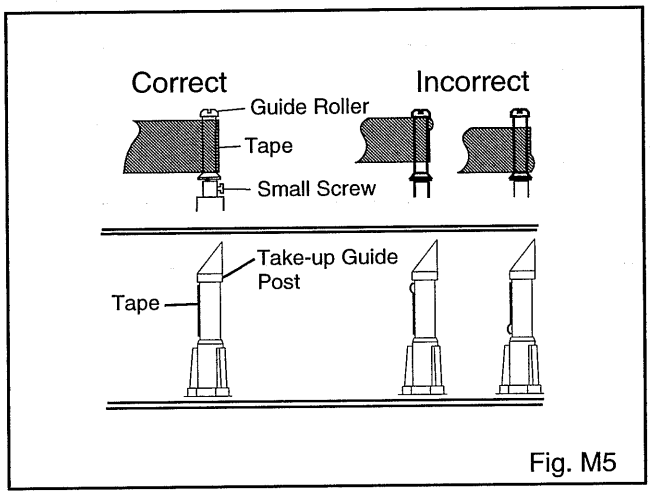


Fig. M5

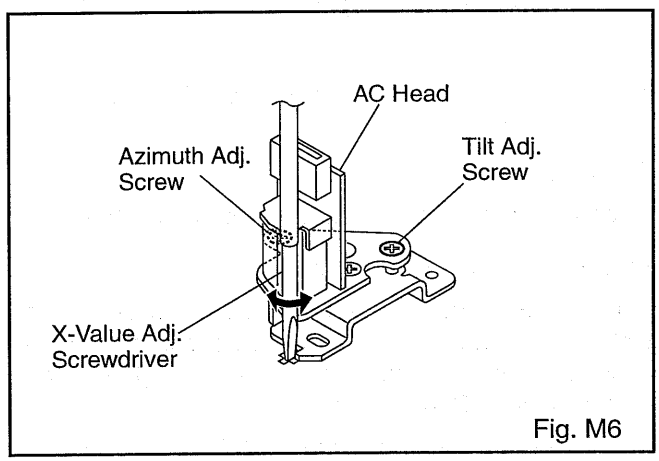


Fig. M6

1-B. X Value Alignment

Purpose:

To align the Horizontal Position of the Audio/Control/Erase Head.

Symptom of Misalignment:

If the Horizontal Position of the Audio/Control/Erase Head is not properly aligned, maximum envelope cannot be obtained at the Neutral position of the Tracking Control Circuit.

1. Connect the oscilloscope to TP301 (C-PB) and TP303 (CTL) on the Main CBA. Use TP302 (RF-SW) as a trigger.
2. Play back the Gray Scale of the Alignment Tape (FL8NW) and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the center position by pressing the CH UP button then the PLAY button on the VCR. (Refer to note on bottom of page 2-3-4.)
4. Use the X-Value Adj. Screwdriver so that the PB FM signal at TP301 (C-PB) is maximum. (Fig. M6)
5. Press CH UP button on VCR until the CTL waveform has shifted by approx. +2msec. Make sure that the envelope is simply attenuated (shrinks in height) during this process so that you will know the envelope has been at its peak.

6. Press CH DOWN button on the VCR until the CTL waveform has shifted from its original position (not the position achieved in step 5, but the position of CTL waveform in step 4) by approximately -2msec. Make sure that the envelope is simply attenuated (shrinks in height) once CTL waveform passes its original position and is further brought in the minus direction.
7. Set the Tracking Control Circuit to the center position by pressing the CH UP button and then the PLAY button on the VCR.

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

To achieve a satisfactory picture and precise tracking.

Symptom of Misalignment:

If the envelope output is poor, noise will appear in the picture. The tracking will then lose precision and the playback picture will be distorted by any slight variation of the Tracking Control Circuit.

1. Connect the oscilloscope to TP301 (C-PB) on the Main CBA. Use TP302 (RF-SW) as a trigger.
2. Play back the Gray Scale on the Alignment Tape (FL8NW). Set the Tracking Control Circuit to the center position by pressing the CH UP and then the PLAY button on the VCR. Adjust the height of Guide Rollers [2] and [3] (Fig. M3, Page 2-3-3) watching the oscilloscope display so that the envelope becomes as flat as possible. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
3. If the envelope is as shown in Fig. M7, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
4. If the envelope is as shown in Fig. M8, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
5. When Guide Rollers [2] and [3] (Refer to Fig.M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.

Note: Upon completion of the adjustment of Guide Rollers [2] and [3] (Refer to Fig. M3), check the X Value by pushing the CH UP or DOWN buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure center position. The number of pushes UP to achieve 1/2 level of envelope should match the number of pushes DOWN from center. If required, redo the "X Value Alignment."

1-D. Azimuth Alignment of Audio/Control/ Erase Head

Purpose:

To correct the Azimuth alignment so that the Audio/Control/Erase Head meets tape tracks properly.

Symptom of Misalignment:

If the position of the Audio/Control/Erase Head is not properly aligned, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Play back the alignment tape (FL8NW) and confirm that the audio signal output level is 8 kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform on the oscilloscope is at maximum. (Fig. M6)

Dropping envelope level at the beginning of track.

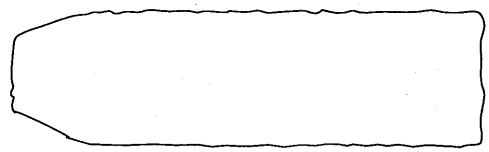


Fig. M7

Dropping envelope level at the end of track.

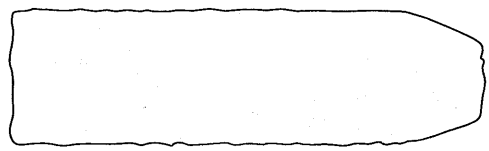


Fig. M8

Envelope is adjusted properly. (No envelope drop)

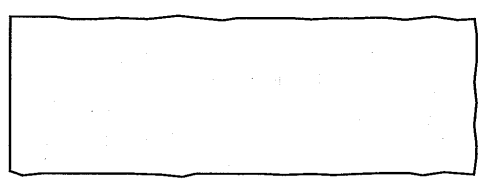


Fig. M9

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Main Mechanism

Before following the procedures described below, be sure to:

1. Remove the deck assembly from the cabinet.
   (Refer to CABINET DISASSEMBLY INSTRUCTIONS on page 1-6-1
2. Remove Front Loading Assembly from main mechanism of the deck assembly. (See Fig. DM3)

All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [43] and [44] in Fig. DM1 on page 2-4-3. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[0]	[0]	Joint Holder B	T	DM3	(S-1)	
[1]	[0]	Front Loading Assembly	T	DM3	2(S-2), Rec Arm	(+) Refer to Alignment Sec. Pg. 2-4-11
[2]	[2]	Cylinder Shield	T	DM3	2(S-3)	
[3]	[3]	Deck Grounding Plate	T	DM3	(S-4)	
[4]	[2]	Cylinder Assembly	T	DM1, DM4	3(S-5), VH Connector A and B, ACH Connector AN(7P) and B(7P)	
[5]	[5]	Loading Motor Assembly	T	DM1, DM5	(S-6), LDG Belt (B), ACH Connector AN(9P) and B(9P)	
[6]	[5]	Loading Motor Holder	T	DM1, DM5	2(S-7), *(L-1)	
[7]	[5]	AC Head Assembly	T	DM1, DM6	2(S-8)	
[8]	[8]	Tape Guide Assembly	T	DM1, DM6	*(P-1), *(P--2), (C-1)	
[9]	[9]	Door Opener B	T	DM1, DM6	(S-9), *(L-2)	
[10]	[9]	Pinch Arm (A) Assembly	T	DM1, DM6	*(P-3)	
[11]	[10]	Pinch Arm (B) Assembly	T	DM1, DM6	E ring	
[12]	[8]	Capstan Motor	B	DM2, DM7	3(S-10), Capstan Belt	
[13]	[13]	Cam Gear (B)	B	DM2, DM8	(C-2)	
[14]	[14]	Center Pully	B	DM2, DM8	(C-3)	
[15]	[15]	M Lever Holder	B	DM2, DM8	(C-4)	
[16]	[15]	F Brake Assembly	B	DM2, DM8	(S-11), *(P-4)	
[17]	[17]	Insulation Cap A	T	DM1, DM9	(S-12)	
[18]	[17]	Mode Lever Holder A	B	DM2, DM9	(S-13)	
[19]	[13]	Mode Lever A Assembly	B	DM2, DM9	*2(L-3)	
[20]	[18]	Mode Gear	B	DM2, DM9	(C-5), (W-1)	(+) Refer to Alignment Sec. Pg. 2-4-10
[21]	[13]	Cam Gear (A)	B	DM2, DM9		
[22]	[20]	Pully Assembly	B	DM2, DM9		
[23]	[21]	Worm Holder	B	DM2, DM9	(S-14)	
[24]	[23]	Insulator Cap B	T	DM1, DM10	(S-15), *(P-5)	
[25]	[24]	First Post Assembly	T	DM1, DM10	(S-16)	
[26]	[25]	FE Head	T	DM1, DM10	(S-17)	
[27]	[26]	Prism	T	DM1, DM10	(S-18)	
[28]	[12]	TG Post Assembly	T	DM1, DM10	(S-19), *(L-4)	

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[29]	[28]	M Brake T Assembly	T	DM1, DM11	*(P-6)	
[30]	[18]	M Brake S Assembly	T	DM1, DM11	*(L-5)	
[31]	[30]	Tension Lever Assembly	T	DM1, DM11	*(P-7), (C-6)	
[32]	[31]	Tension Lever Sub Assembly	T	DM1, DM11		
[33]	[31]	Reel S Assembly	T	DM1, DM11	(C-7), Poly Slider Washer	
[34]	[29]	Reel T Assembly	T	DM1, DM11	(C-8), Poly Slider Washer	
[35]	[33]	Reel Shaft	T	DM1, DM11	2(S-20)	
[36]	[18]	First Gear	B	DM2, DM12	(C-9)	
[37]	[36]	Second Gear	B	DM2, DM12	(C-10), (W-2)	
[38]	[37]	FF Arm	T	DM1, DM13		
[39]	[37]	Idler Assembly	T	DM1, DM13		
[40]	[37]	BT Arm Assembly	B	DM2, DM14		
[41]	[19]	Loading Arm T Assembly	B	DM2, DM14	(C-11)	(+) Refer to Alignment Sec. Pg. 2-4-10
[42]	[41]	Loading Arm S Assembly	B	DM2, DM14		(+) Refer to Alignment Sec. Pg. 2-4-10
[43]	[2]	Moving Guide S Preparation	T	DM1, DM15		
[44]	[2]	Moving Guide T Preparation	T	DM1, DM15		
[45]	[2]	Cleaner Lever Assembly	T	DM1, DM4		
[46]	[45]	CL Post	T	DM1, DM4		
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤	↓ ⑥	↓ ⑦

①: Follow steps in sequence. When reassembling, follow the steps in reverse order.
These numbers are also used as Identification (location) No. of parts in the figures.

②: Indicates the part to start disassembling with in order to disassemble the part in column (1).

③: Name of the part

④: Location of the part: T=Top B=Bottom R=Right L=Left

⑤: Figure Number

⑥: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder
e.g., 2(L-2) = two Locking Tabs (L-2).

⑦: Adjustment Information for Installation
(+): Refer to Deck Exploded Views for lubrication.

Top View

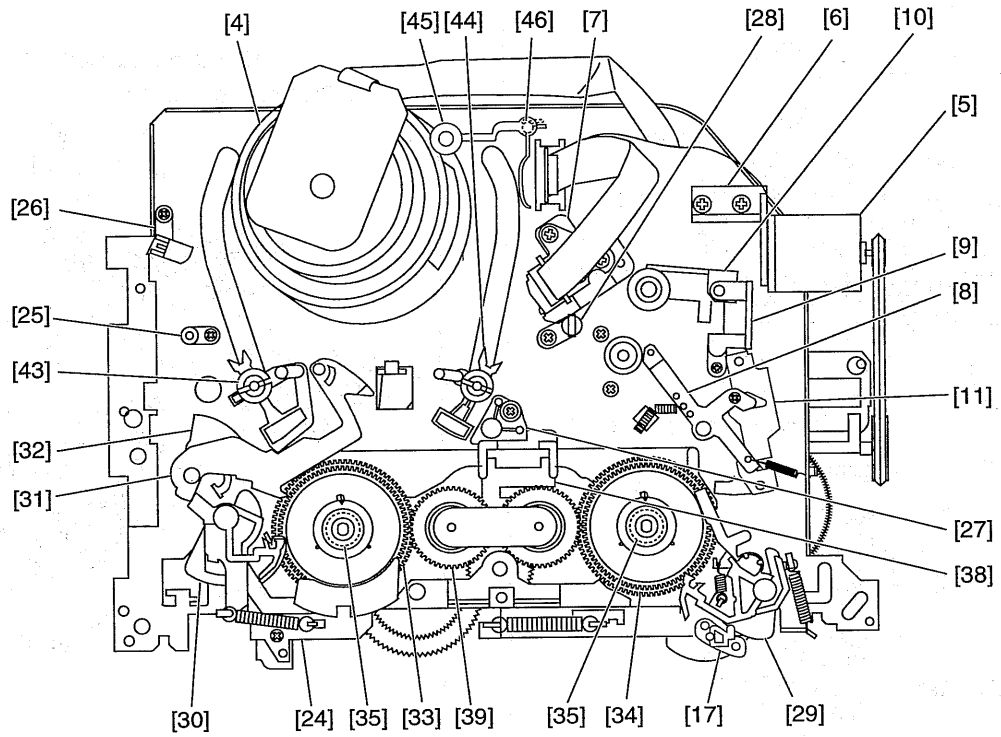


Fig. DM1

Bottom View

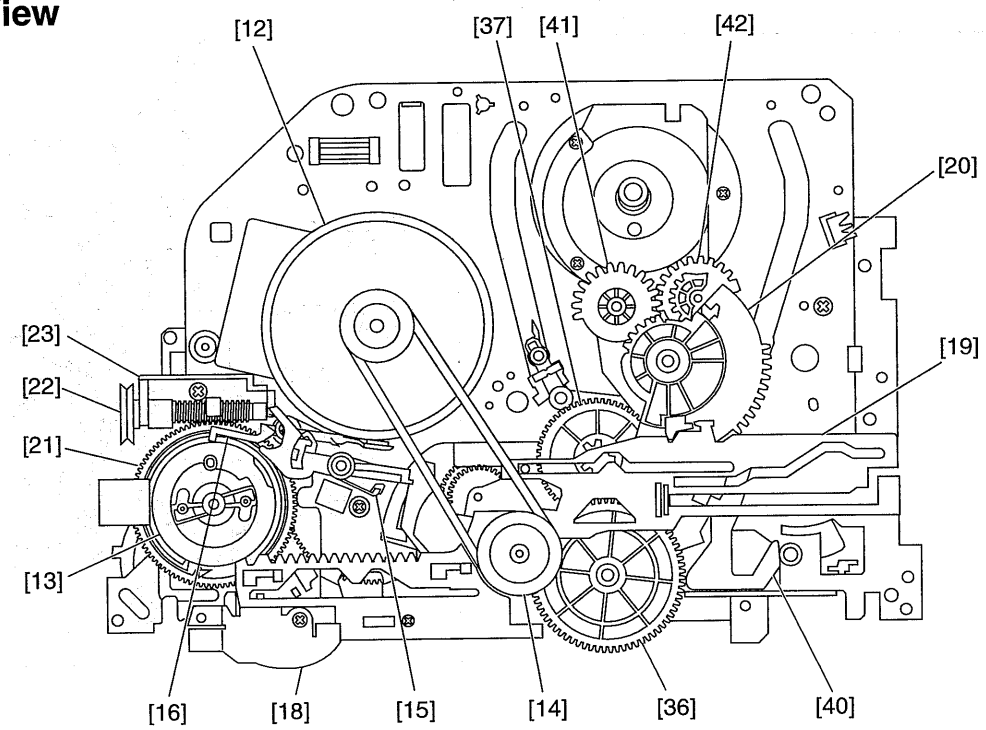
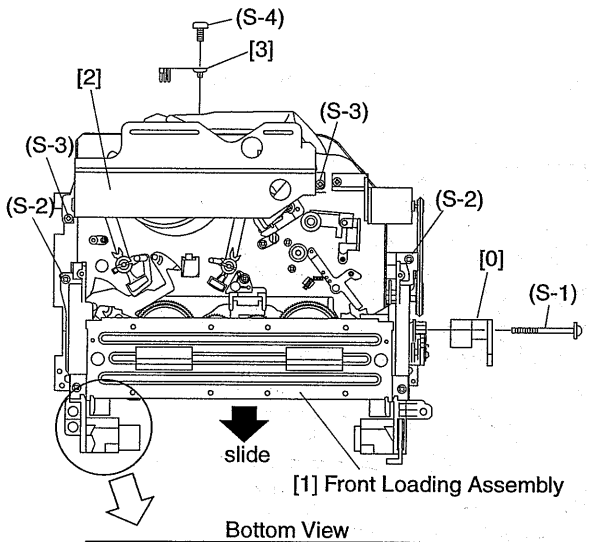
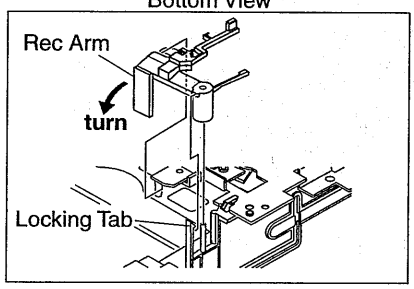


Fig. DM2



Bottom View



To remove Front Loading Assembly:
1. Remove Rec Arm while releasing Locking Tab as shown.
2. Remove Screw (S-1) and [0] Joint Holder B.
3. Remove Screw 2(S-2).
4. Lift it up slightly and then, slide Front Loading Assembly.

Fig. DM3

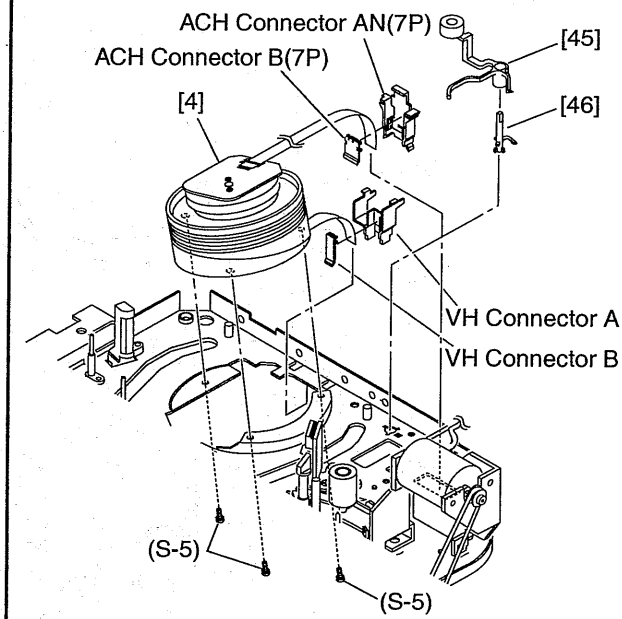


Fig. DM4

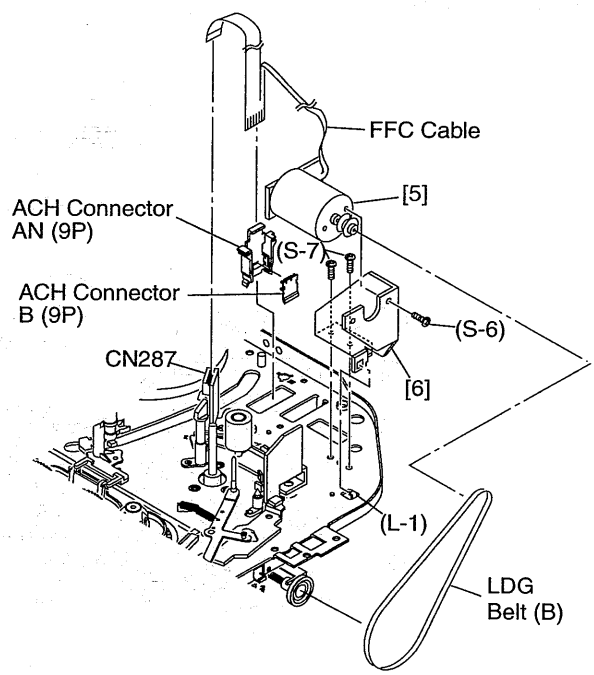
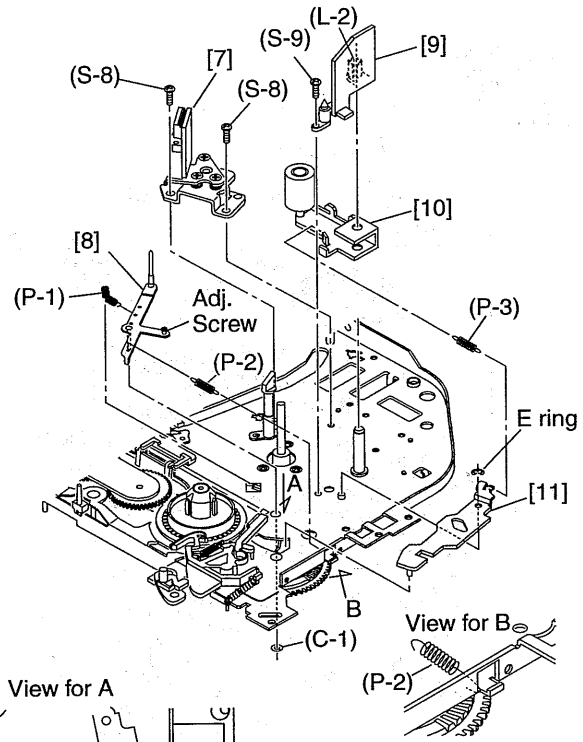
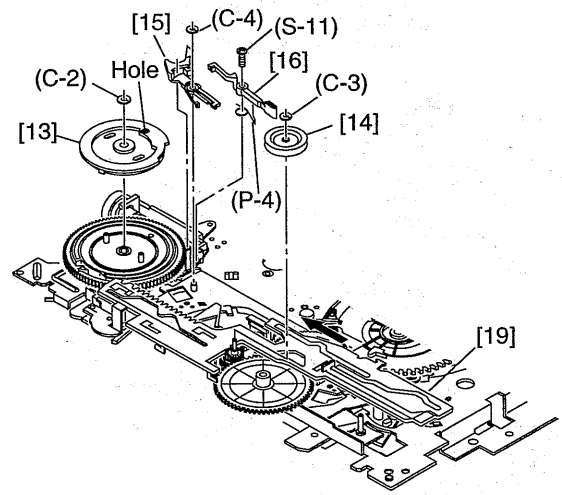


Fig. DM5



When reassembling [11], confirm that pin of [11] is in the groove of [21] as shown.

Fig. DM6



When reassembling [13], confirm that the hole on [13] is in the correct position as shown.
After reassembling [13], be sure to slide [19] until the left edge of [19] touches [13] as shown in Fig. DM7.

Fig. DM8

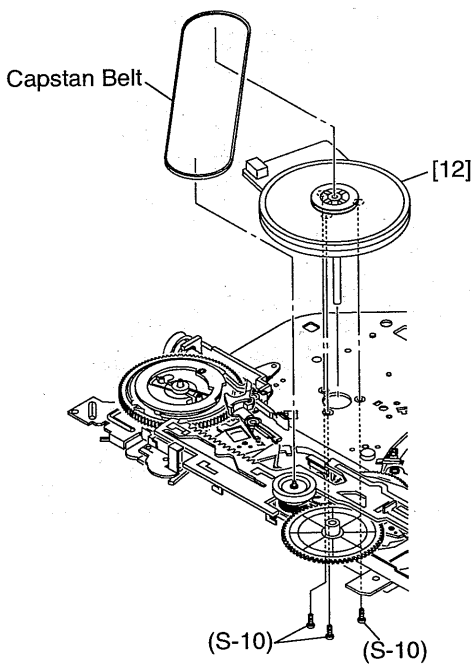


Fig. DM7

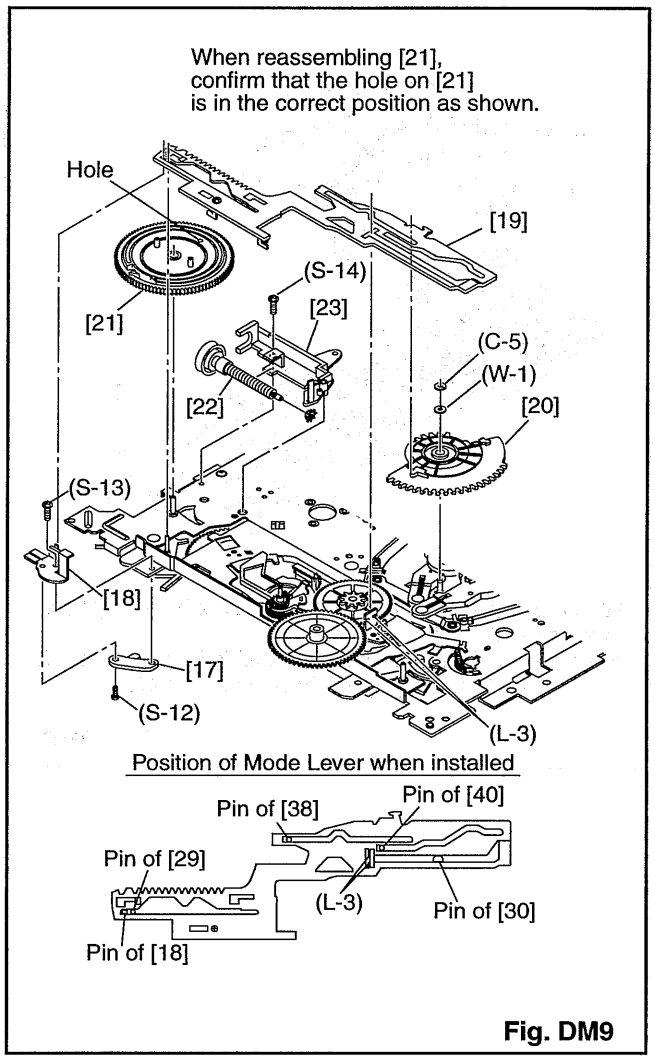
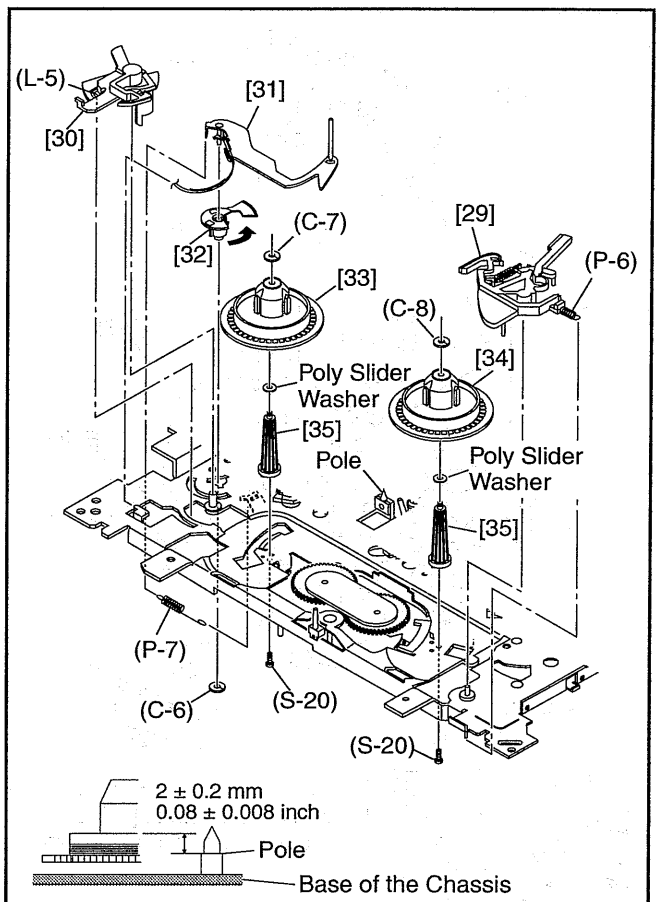


Fig. DM9



If the alignment height is not correct, it is acceptable to use one more Poly Slider Washer to raise the height. (Poly Slider Washer is 0.1 mm/0.004 inch in thickness.)

Fig. DM11

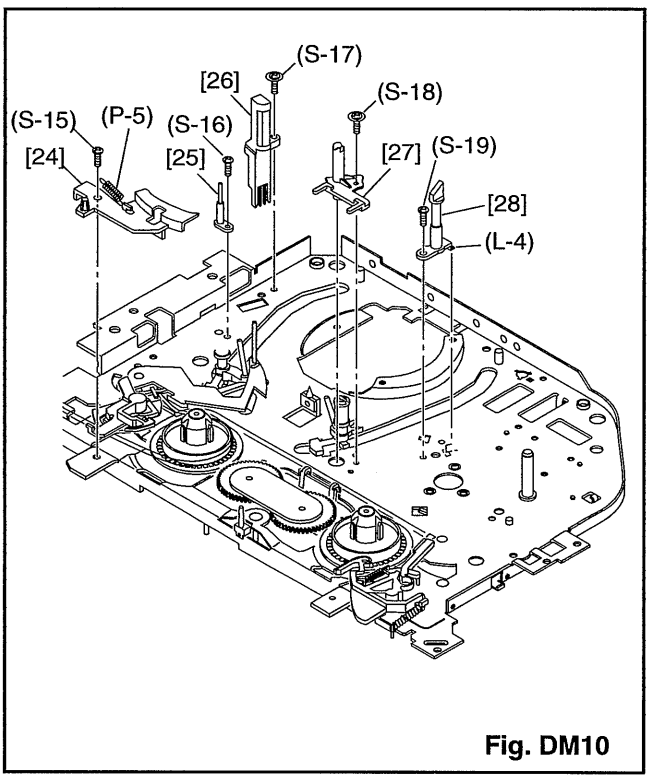


Fig. DM10

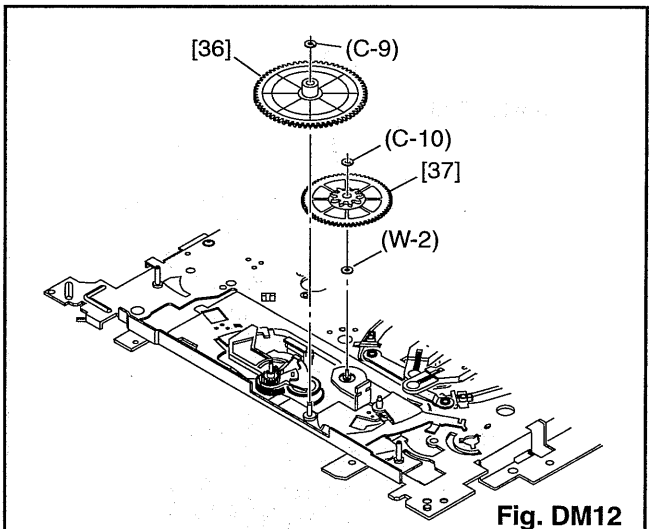


Fig. DM12

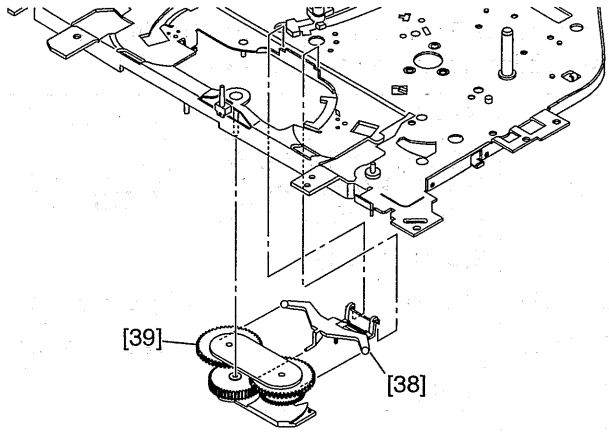


Fig. DM13

Refer to the Alignment Section, Page 2-4-10.

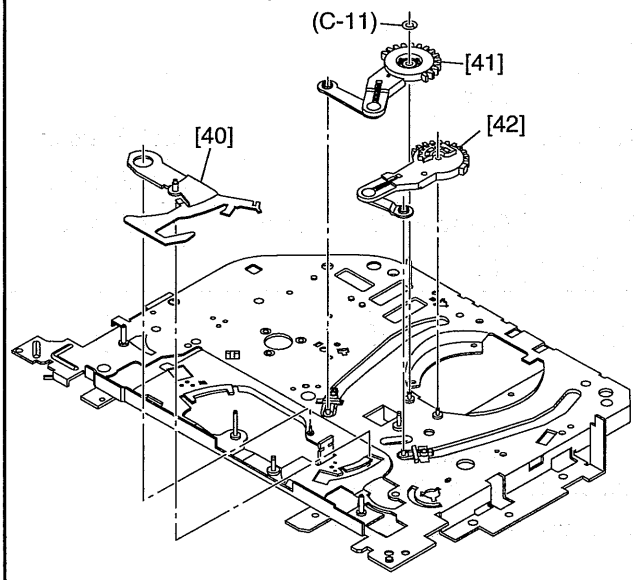


Fig. DM14

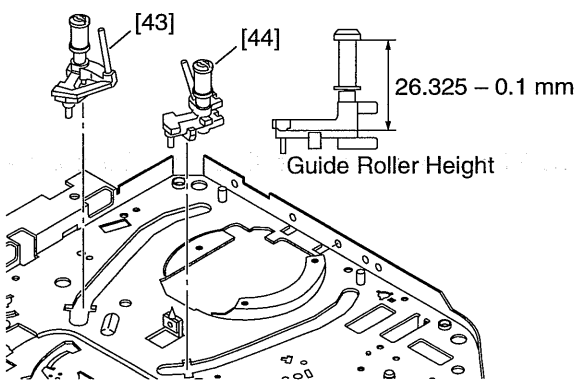


Fig. DM15

Front Loading Assembly

Before following the procedures described below, be sure to remove Front Loading Assembly from the main mechanism of the deck assembly. (See Fig. DM3.) When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Guide Holder	T	DM17	2(S-1), *2(L-1)	
[2]	[1]	Slider Gear	L, R	DM16, DM17	*4(L-2)	Eject Position
*[3]	[2]	Slider Shaft	T	DM16, DM17		Eject Position
[4]	[4]	Cassette Plate	T	DM17	2(S-2)	
[5]	[4]	Slider L	T	DM17		
[6]	[4]	Slider R	T	DM17	(S-3)	
[7]	[6]	Door Opener A	R	DM17		
[8]	[8]	Lock Lever	B	DM17	(S-4), *(P-1)	
[9]	[3]	Cassette Guide R	R	DM17		
[10]	[3]	Cassette Guide L	L	DM17		
[11]	[11]	Joint Holder A	R	DM17	(S-5), *(P-2)	
[12]	[11]	Cassette Drive Sub Gear	R	DM17, DM18		Eject Position
[13]	[11]	Cassette Drive Gear	R	DM17, DM18		Eject Position
[14]	[13]	Cassette Drive Lever	R	DM17	Cassette Drive Spring	Eject Position
[15]	[14]	Front Door Opener	R	DM17, DM18	*(L-3)	
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤	↓ ⑥	↓ ⑦

①: Follow steps in sequence. When reassembling, follow the steps in reverse order.
These numbers are also used as Identification (location) No. of parts in the figures.

②: Indicates the part to start disassembling with in order to disassemble the part in column (1).

③: Name of the part

④: Location of the part: T=Top B=Bottom R=Right L=Left

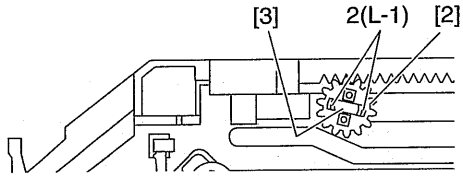
⑤: Figure Number

⑥: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder
e.g., 2(L-2) = two Locking Tabs (L-2).

⑦: Adjustment Information for Installation
(+): Refer to Deck Exploded Views for lubrication.

*[3]: They are divided into two steps because, before reassembling Slider Shaft, one Slider Gear must be preinstalled at either end of Slider Shaft.

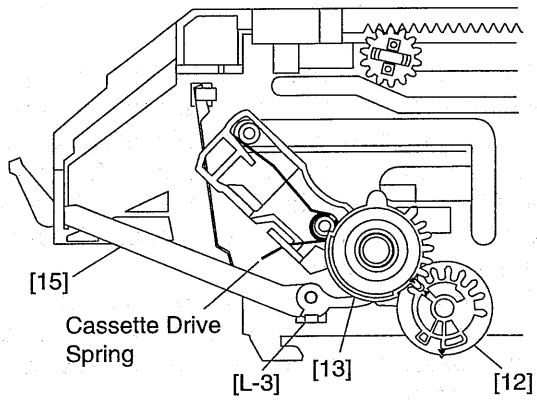
View before disassembling [2] and [3]
(Installation of Slider Shaft and Slider Gear)



Install [2] and [3] in Eject position.
(When disassembling, [2] and [3] can be removed either in Eject position or Cassette-in position.)

- This figure shows where [2], [3] and other parts are in Eject position.

Fig. DM16



When reassembling [12] and [13], refer to the Alignment Section, Pg. 2-4-11.

- This figure shows where [12], [13], [15] and other parts are in Eject position.

Fig. DM18

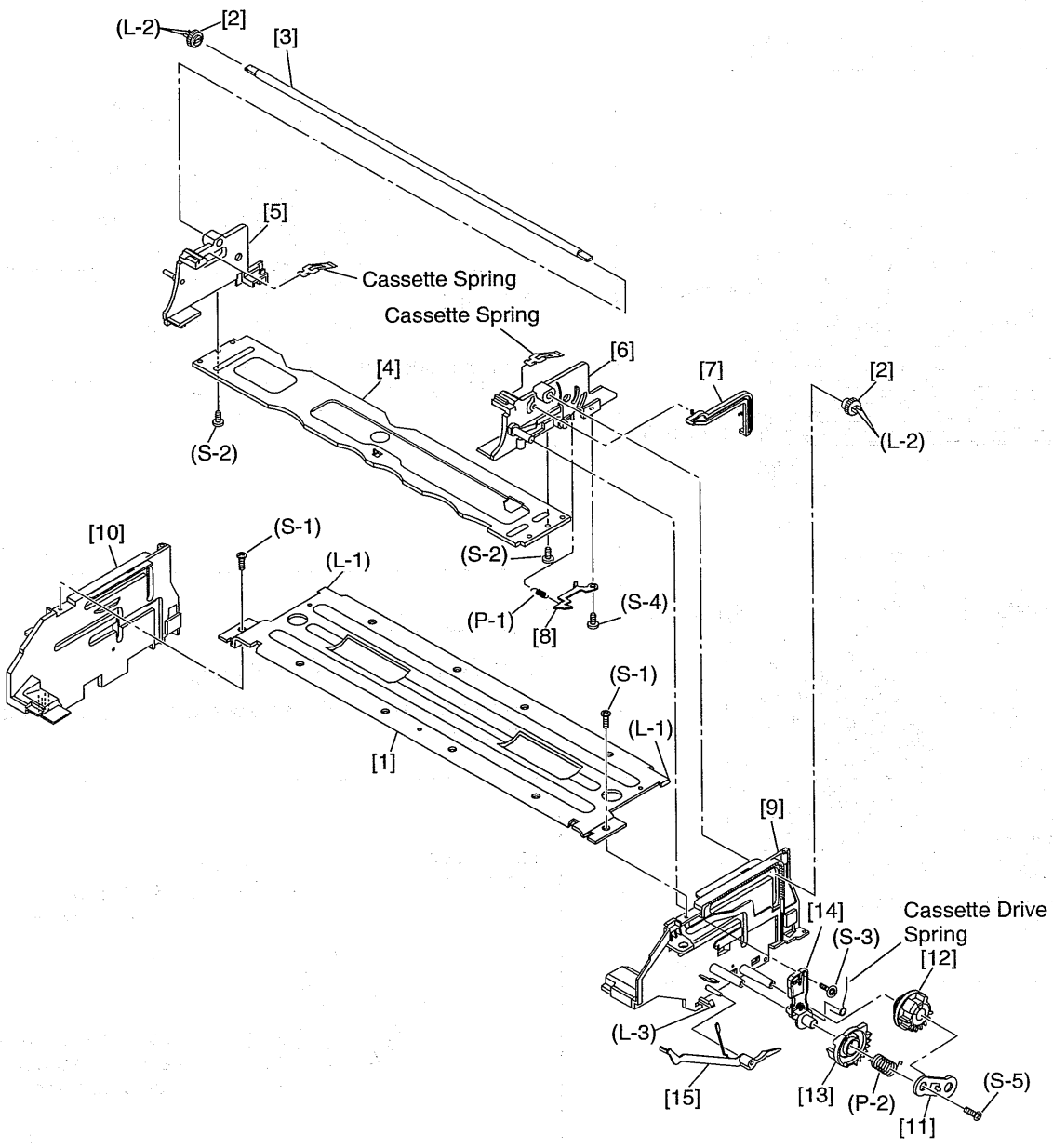


Fig. DM17

ALIGNMENT PROCEDURES OF MECHANISM

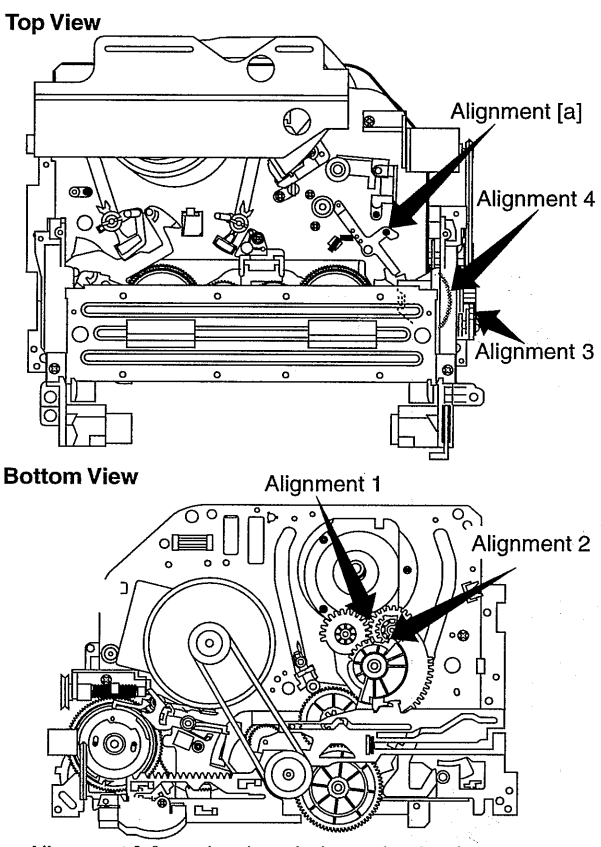
The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between individual gears and levers be maintained.

All alignments are to be performed with the mechanism in Eject mode, in the sequence given. Each procedure assumes that all previous procedures have been completed.

IMPORTANT:

If any one of these alignments is not performed properly, even if off by only one tooth, the unit will unload or stop and it may result in damage to the mechanical or electrical parts.

Alignment points in Eject Position



Alignment [a] can be done independently of any other alignment.

Fig. AL1

Alignment 1

Loading Arm, S and T Assembly

Install Loading Arm S and T Assembly so that their triangle marks point to each other as shown in Fig. AL2.

Alignment 2

Mode Gear

Keeping the two triangles pointing at each other, install the Loading Arm T Assembly so that the last tooth of the gear meets the most inside teeth of the Mode Gear. See Fig. AL2.

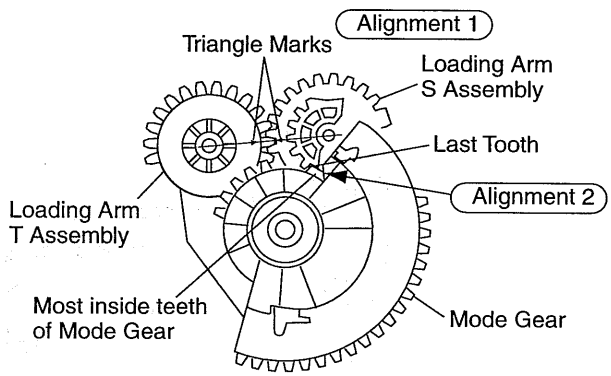


Fig. AL2

Alignment [a]

Tape Guide Arm Assembly

Measurement of the screw must be as specified in Fig. AL3.

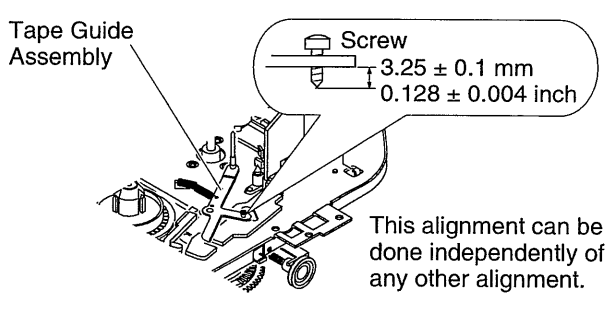


Fig. AL3

Alignment 3

Cassette Drive Gear, Cassette Drive Sub Gear

Install the Cassette Drive Gear and Cassette Drive Sub Gear so that their triangle marks point to each other as shown in Fig. AL4.

Alignment 4

Cam Gear (A), Cassette Drive Sub Gear

Install the Front Loading Assembly so that the triangle mark of Cassette Drive Sub Gear is aligned with the indent of the Cam Gear (A) as shown in Fig. AL4.

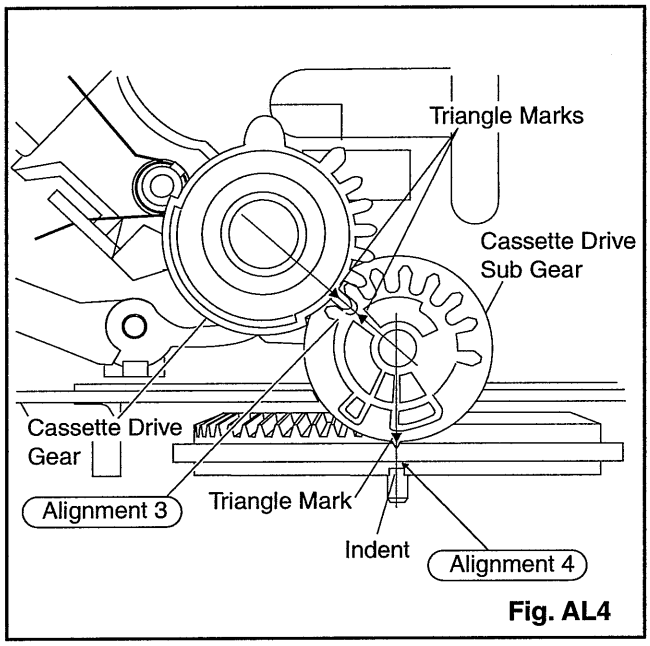


Fig. AL4

EXPLODED VIEWS AND PARTS LIST SECTION

VIDEO CASSETTE RECORDER

SRV206

Sec. 3: Exploded views and Parts List Section

- **Exploded views**
- **Parts List**

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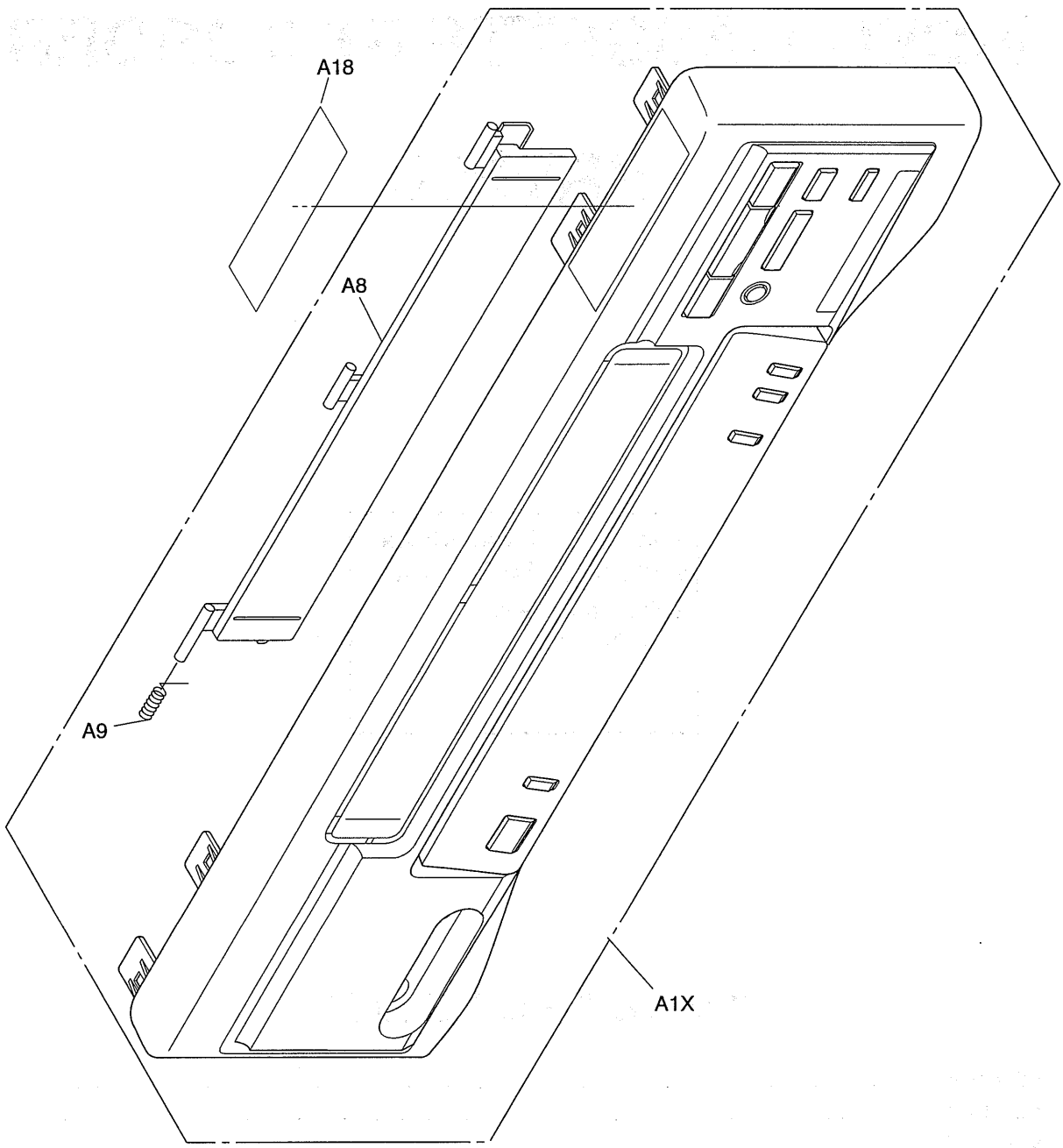
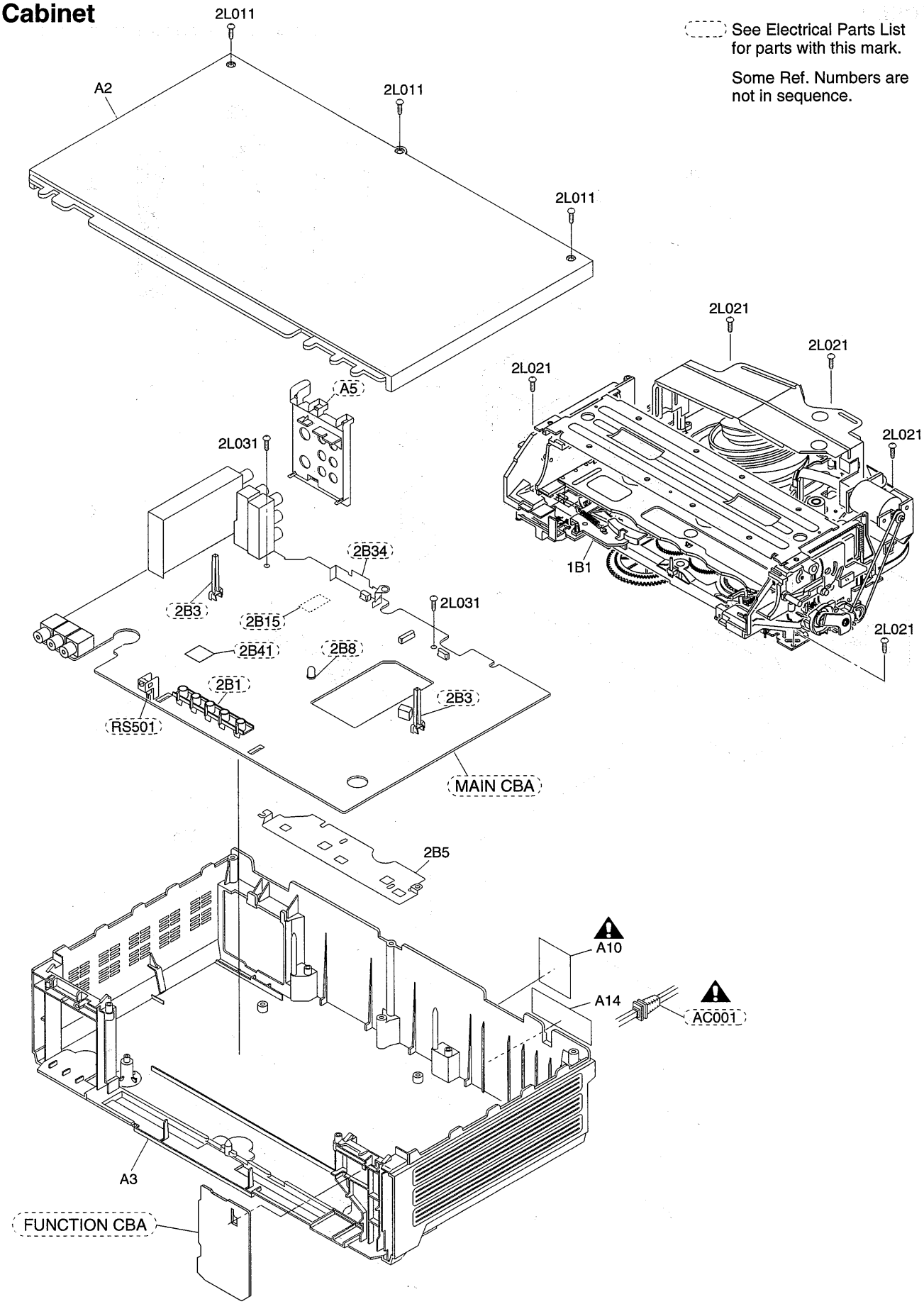
EXPLODED VIEWS

Front Panel



Cabinet

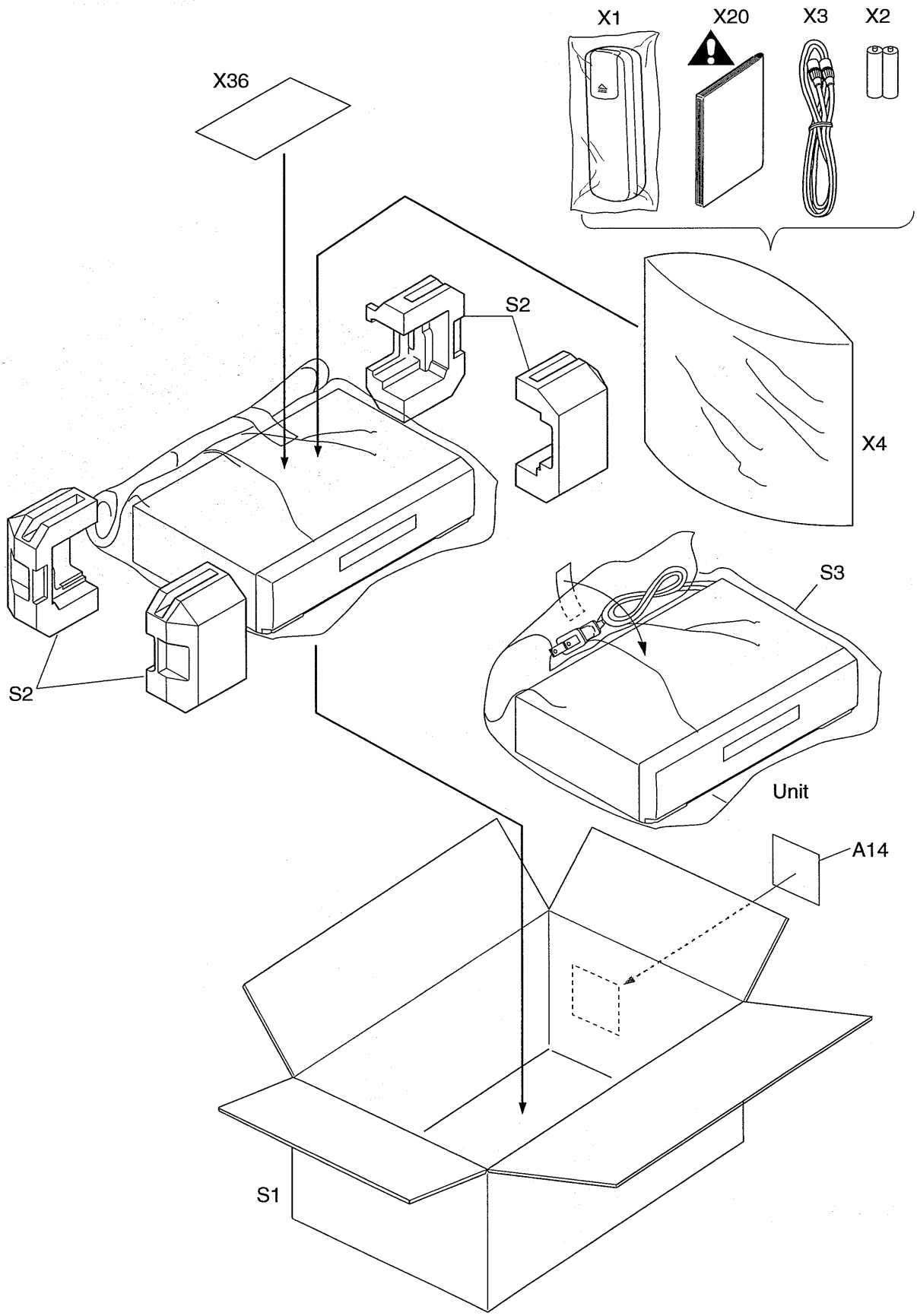


See Electrical Parts List for parts with this mark.

Some Ref. Numbers are not in sequence.

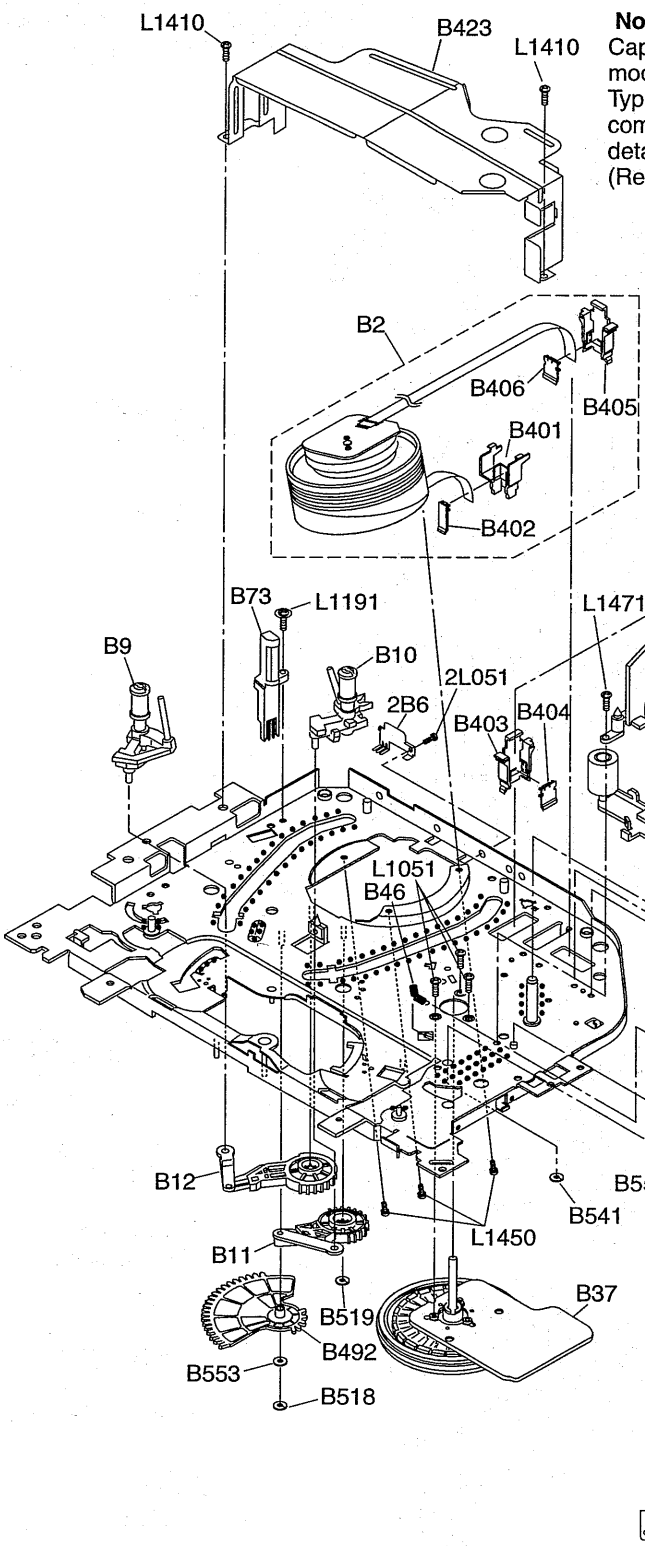
Packing

Some Ref. Numbers are not in sequence.



Deck Mechanism View 1

Mark	Description		Part No.
•••••	Floil G-374G	(Blue grease)	0VZZ00109

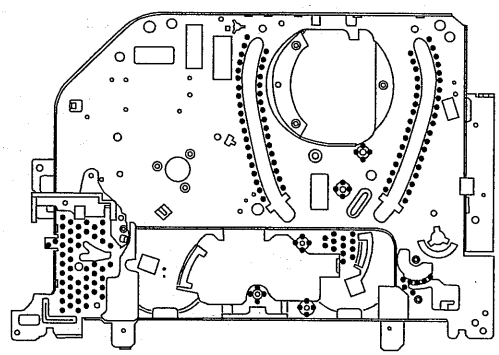


Note: Two different, but interchangeable, types of Capstan Motor (B37) may be installed in these models. Please confirm B37 CAPSTAN MOTOR Type by color. B37 CAPSTAN MOTOR type varies in combination with L1051. Please see Table 1 for details and combination.
(Refer to DECK PARTS LIST section on page 2-6-1.)

Table 1 (B37 and L1051 Combination)

B37 Capstan Motor		L1051
Type	ID No.	ID No.
Black	MMDZB25SJ001	GPMS6090
Silver	MMDZB12SJ007	GPMB6090

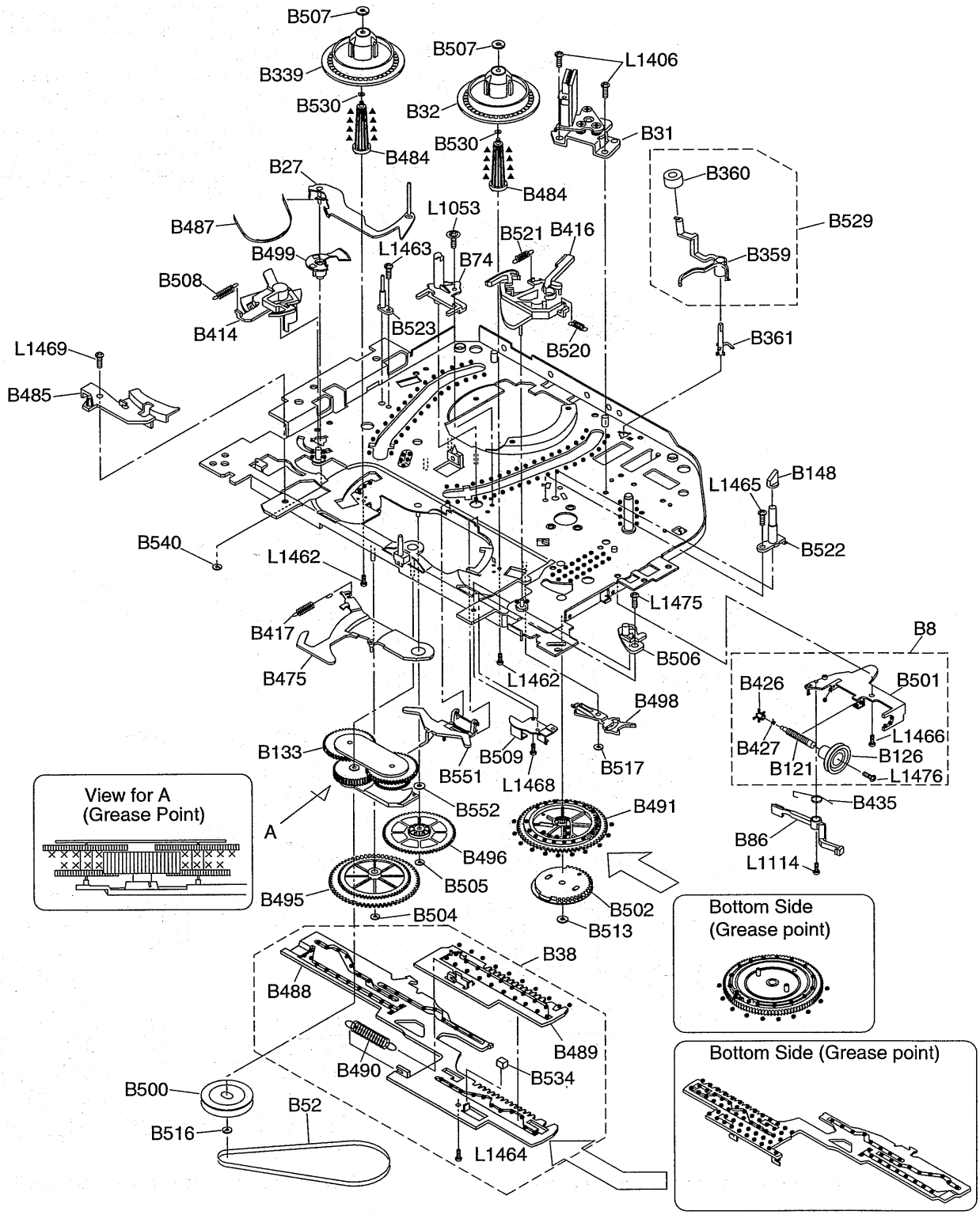
Some Ref. Numbers are not in sequence.



Chassis Assembly Bottom View (Grease Point)

Deck Mechanism View 2

Mark	Description	Part No.
×××××	Sankol FG-84M (White grease)	0VZZ00062
●●●●●	Floil G-374G (Blue grease)	0VZZ00109
▲▲▲▲▲	Hydro-Fluid EP56 (Spindle oil)	0VZZ00068

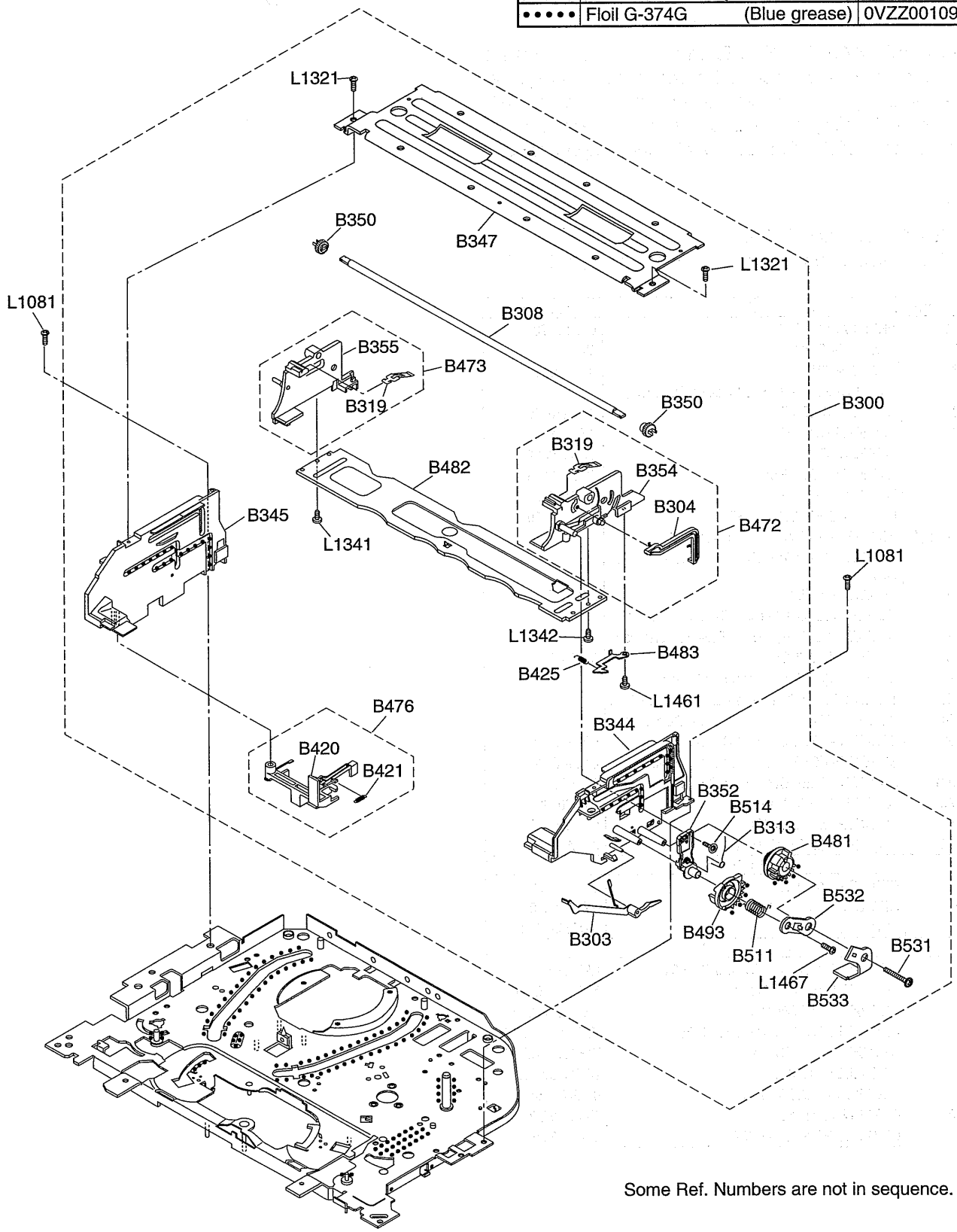


B359, B360 and B529: See the Mechanical Parts List.

Some Ref. Numbers are not in sequence.

Deck Mechanism View 3

Mark	Description		Part No.
•••••	Floil G-374G	(Blue grease)	0VZZ00109



Some Ref. Numbers are not in sequence.

MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

Note:

1. B359, B360 and B480:
   See Deck Exploded View 2. (Refer to Page 3-1-5)

Ref. No.	Description	Part No.
A1X	FRONT ASSEMBLY	0VM202734
A 2	CASE, TOP(U21)	0VM100849
A 3	CHASSIS(U21)	0VM000116
A 5	JACK BOARD(HI-FI) (See Electrical Parts List)	
A 8	DOOR, CASSETTE	0VM410516
A 9	SPRING, DOOR U15	0VM408617
A 10 ⚠	LABEL, RATING	0VM410532
A 14	LABEL, BAR CODE or	0VM410318
	LABEL, BAR CODE	0VM410531
A 18	LABEL, TELEPHONE NUMBER	0VM410320
AC 001 ⚠	AC CORD LA-2366 (See Electrical Parts List) or	
	AC CORD WAC0172AS006 (See Electrical Parts List)	
1B 1	DECK ASSEMBLY	N9860FL
2B 1	HOLDER, L.E.D.(U19) (See Electrical Parts List)	
2B 3	HOLDER, SENSOR(2) (See Electrical Parts List)	
2B 5	PLATE, SHIELD(U21)	0VM303951
2B 8	BUSH, LED(E) (See Electrical Parts List)	
2B 15	TAPE, HIMELON (8*10) (See Electrical Parts List)	
2B 34	PLATE, EARTH(U21) (See Electrical Parts List)	
2L 011	SCREW, P-TIGHT 3X10 BIND HEAD+	GBEP3100
2L 021	SCREW, P-TIGHT M3X10 WASHER HEAD+	GCMP3100
2L 031	P-TIGHT SCREW 3X8 BIND + CHROME	GBMP3080
B 359	CLEANER LEVER MK9	0VM303854
B 360	CLEANER ROLLER MK9	0VM410032
B 529	CLEANER ASSEMBLY MK9	0VSA10119
	PACKING	
S 1	GIFT BOX CARTON	0VM304109
S 2	STYROFOAM(F/C-21)	0VM202660
S 3	UNIT, BAG	0VM406453B
	ACCESSORIES	
X 1	REMOTE CONTROL UNIT 364/CRC004	N9326UD
X 2	DRY BATTERY R6P UM3 or	XB0M451GH001
	DRY BATTERY R6P/2S or	XB0M451T0001
	DRY BATTERY(SUNRISE) R6SSE/2S	XB0M451MS002
X 3	RF CABLE FC-NTSC-1 or	WPZ0102TM012
	RF CABLE LP960601	WPZ0102LG006
X 4	ACCESSORY BAG T=0.03	0VM409454
X 20 ⚠	OWNER'S MANUAL	0VMN02417
X 36	QUICK REFERANCE GUIDE	0VMN02414

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

Notes:

1. Parts that not assigned part numbers (----------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J.....±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

3. LED TYPE:
   When it is necessary to replace one or more of the following diodes, all five should be replaced: D595, D596, D597, D598, D599.

MCV CBA

Ref. No.	Description	Part No.
	MCV CBA (Main+Function) Consists of the following:	0VSA10230
	Main CBA (MCV-A) Function CBA (MCV-B)	---------- ----------

Main CBA (MCV-A)

Ref. No.	Description	Part No.
	Main CBA (MCV-A) Consists of the following:	----------
	CAPACITORS	
C 001 ⚠	METALLIZED FILM CAP. 0.01µF/250V M or	CT2E103DC011
	METALLIZED FILM CAP. 0.01µF/250V M	CT2E103MS037
C 002 ⚠	SAFETY CAP. 2200pF/250V or	CCG2EMA0F222
	SAFETY CAP. 2200pF/125V or	CCG2BMA0E222
	SAFETY CAP. 2200pF/250V	CA2E222MR046
C 003	ELECTROLYTIC CAP. 82µF/200V M or	CA2D820NC088
	ELECTROLYTIC CAP. 82µF/200V M or	CA2D820S6011
	ELECTROLYTIC CAP. 82µF/200V M	CA2D820V8002
C 007	CERAMIC CAP. B K 3300pF/50V	CCD1JKS0B332
C 009	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C 013	ELECTROLYTIC CAP. 10µF/50V M H7	CE1JMASSL100
C 017	CERAMIC CAP. B K 1500pF/50V	CCD1JKS0B152
C 018	ELECTROLYTIC CAP. 470µF/16V M or	CE1CMASTL471
	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C 019	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 020	ELECTROLYTIC CAP. 1000µF/10V M or	CE1AMZPTL102
	ELECTROLYTIC CAP. 1000µF/10V M	CE1AMZPDL102
C 021	ELECTROLYTIC CAP. 470µF/10V M or	CE1AMASTL471
	ELECTROLYTIC CAP. 470µF/10V M	CE1AMASDL471
C 023	ELECTROLYTIC CAP. 47µF/16V M or	CE1CMASTL470
	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C 026	ELECTROLYTIC CAP. 2.2µF/250V M or	CA2E2R2S6009
	ELECTROLYTIC CAP. 2.2µF/250V M	CE2EMASTH2R2
C 027	ELECTROLYTIC CAP. 10µF/16V M or	CE1CMASTL100
	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C 029	CERAMIC CAP. F Z 0.022µF/50V or	CCD1JZS0F223
	CERAMIC CAP. YV Z 0.022µF/50V	CCD1JZSYV223
C 031	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C 051	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 052	ELECTROLYTIC CAP. 100µF/6.3V M or	CE0KMASTL101
	ELECTROLYTIC CAP. 100µF/6.3V M	CE0KMASDL101
C 054	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 251	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTL0R1
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASDL0R1
C 254	ELECTROLYTIC CAP. 100µF/6.3V M or	CE0KMASTL101
	ELECTROLYTIC CAP. 100µF/6.3V M	CE0KMASDL101
C 256	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTL0R1
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASDL0R1
C 301	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 302	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 303	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 304	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 305	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 306	CERAMIC CAP.(AX) B J 390pF/50V	CCA1JJT0B391
C 307	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSL0R1
C 308	CERAMIC CAP.(AX) SL J 18pF/50V	CCA1JJTSL180
C 309	CERAMIC CAP.(AX) B K 180pF/50V or	CCA1JKT0B181
	CERAMIC CAP.(AX) B J 180pF/50V	CCA1JJT0B181
C 310	ELECTROLYTIC CAP. 100µF/6.3V M H7	CE0KMASSL101
C 311	CHIP CERAMIC CAP. B K 470pF/50V	CHE1JKB0B471
C 312	ELECTROLYTIC CAP. 47µF/6.3V M or	CE0KMASTL470
	ELECTROLYTIC CAP. 47µF/6.3V M	CE0KMASDL470
C 313	CHIP CERAMIC CAP. B K 6800pF/50V	CHE1JKB0B682
C 314	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 315	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 316	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 317	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 318	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 319	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 323	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBSL221
C 324	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBSL221
C 325	CHIP CERAMIC CAP. CH J 47pF/50V	CHE1JJBCH470
C 326	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 327	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 328	ELECTROLYTIC CAP. 3.3µF/50V M H7	CE1JMASSL3R3
C 329	CHIP CERAMIC CAP. SL J 390pF/50V	CHE1JJBSL391
C 330	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 331	CERAMIC CAP.(AX) SL J 68pF/50V	CCA1JJTSL680
C 332	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 333	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C 334	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 335	CHIP CERAMIC CAP. B K 3900pF/50V	CHE1JKB0B392
C 336	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 337	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 338	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSL0R1
C 339	ELECTROLYTIC CAP. 100µF/6.3V M or	CE0KMASTL101
	ELECTROLYTIC CAP. 100µF/6.3V M	CE0KMASDL101
C 341	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 342	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 343	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 344	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C 345	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 346	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 347	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 349	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 350	CERAMIC CAP.(AX) B K 330pF/50V or	CCA1JKT0B331
	CERAMIC CAP.(AX) B J 330pF/50V	CCA1JJT0B331

Ref. No.	Description	Part No.
C 352	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 354	CERAMIC CAP.(AX) SL K 5.6pF/50V	CCA1JKTSL5R6
C 355	CERAMIC CAP.(AX) B K 220pF/50V or	CCA1JKT0B221
	CERAMIC CAP.(AX) B J 220pF/50V	CCA1JJT0B221
C 356	CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
	CERAMIC CAP.(AX) B J 1000pF/50V	CDA1JJT0B102
C 391	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C 392	ELECTROLYTIC CAP. 470µF/6.3V M or	CE0KMASTL471
	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C 403	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHE1JZB0F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHE1EZB0F104
C 404	ELECTROLYTIC CAP. 22µF/10V M or	CE1AMASTL220
	ELECTROLYTIC CAP. 22µF/10V M	CE1AMASDL220
C 406	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 407	ELECTROLYTIC CAP. 33µF/6.3V M or	CE0KMASTL330
	ELECTROLYTIC CAP. 33µF/6.3V M	CE0KMASDL330
C 408	ELECTROLYTIC CAP. 4.7µF/25V M or	CE1EMASTL4R7
	ELECTROLYTIC CAP. 4.7µF/25V M	CE1EMASDL4R7
C 410	CHIP CERAMIC CAP. B K 1000pF/50V	CHE1JKB0B102
C 411	CHIP CERAMIC CAP. B K 2700pF/50V	CHE1JKB0B272
C 412	CHIP CERAMIC CAP. B K 680pF/50V	CHE1JKB0B681
C 413	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASSL4R7
C 414	ELECTROLYTIC CAP. 10µF/16V M or	CE1CMASTL100
	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C 415	FILM CAP.(P) 0.012µF/50V J or	CMA1JJS00123
	FILM CAP.(P) 0.012µF/50V J or	CA1J123MS029
	FILM CAP.(P) 0.012µF/50V J TV	CMB1JJS00123
C 422	ELECTROLYTIC CAP. 100µF/6.3V M or	CE0KMASTL101
	ELECTROLYTIC CAP. 100µF/6.3V M	CE0KMASDL101
C 423	ELECTROLYTIC CAP. 100µF/6.3V M or	CE0KMASTL101
	ELECTROLYTIC CAP. 100µF/6.3V M	CE0KMASDL101
C 424	CERAMIC CAP. B K 470pF/100V or	CCD2AKP0B471
	CERAMIC CAP. B K 470pF/500V	CCD2JKS0B471
C 425	FILM CAP.(P) 0.018µF/100V J or	CMA2AJS00183
	FILM CAP.(P) 0.018µF/100V J or	CA2A183MS029
	FILM CAP.(P) 0.018µF/100V J TV or	CMB2AJS00183
	FILM CAP.(P) 0.018µF/50V J	CA1J183MS029
C 451	ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASTLR47
	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASDLR47
C 452	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSL0R1
C 453	ELECTROLYTIC CAP. 10µF/16V M or	CE1CMASTL100
	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C 454	ELECTROLYTIC CAP. 2.2µF/50V M H7	CE1JMASSL2R2
C 455	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 456	ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMASSL220
C 457	ELECTROLYTIC CAP. 10µF/16V M or	CE1CMASTL100
	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C 458	ELECTROLYTIC CAP. 4.7µF/25V M or	CE1EMASTL4R7
	ELECTROLYTIC CAP. 4.7µF/25V M	CE1EMASDL4R7
C 459	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 460	ELECTROLYTIC CAP. 22µF/10V M or	CE1AMASTL220
	ELECTROLYTIC CAP. 22µF/10V M	CE1AMASDL220
C 461	CHIP CERAMIC CAP. B K 4700pF/50V	CHE1JKB0B472
C 462	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 463	CERAMIC CAP.(AX) B K 330pF/50V or	CCA1JKT0B331
	CERAMIC CAP.(AX) B J 330pF/50V	CCA1JJT0B331
C 464	ELECTROLYTIC CAP. 47µF/10V M or	CE1AMASTL470
	ELECTROLYTIC CAP. 47µF/10V M	CE1AMASDL470
C 465	CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 466	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 467	CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C 468	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C 469	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 470	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASSL4R7

Ref. No.	Description	Part No.
C 471	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 472	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 473	ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMASSL220
C 474	CERAMIC CAP.(AX) X K 6800pF/16V	CDA1CKT0X682
C 475	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 476	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 477	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSL0R1
C 478	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 479	ELECTROLYTIC CAP. 0.47µF/50V M H7	CE1JMASSLR47
C 480	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSL0R1
C 481	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASSL4R7
C 482	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASSL4R7
C 483	ELECTROLYTIC CAP. 47µF/10V M or	CE1AMASTL470
	ELECTROLYTIC CAP. 47µF/10V M	CE1AMASDL470
C 484	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASSL4R7
C 485	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 486	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 487	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASSL4R7
C 488	ELECTROLYTIC CAP. 0.47µF/50V M H7	CE1JMASSLR47
C 489	ELECTROLYTIC CAP. 4.7µF/50V M H7	CE1JMASSL4R7
C 491	ELECTROLYTIC CAP. 4.7µF/50V M H7	CE1JMASSL4R7
C 494	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 495	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 496	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 497	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 498	CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C 503	ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMASSL220
C 506	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 507	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 509	CERAMIC CAP.(AX) CH J 15pF/50V	CCA1JJTCH150
C 510	CHIP CERAMIC CAP. CH J 15pF/50V	CHE1JJBCH150
C 511	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 512	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 513	CHIP CERAMIC CAP. B K 2700pF/50V	CHE1JKB0B272
C 514	FILM CAP.(P) 0.047µF/50V J or	CMA1JJS00473
	FILM CAP.(P) 0.047µF/50V J or	CA1J473MS029
	FILM CAP.(P) 0.047µF/50V J TV	CMB1JJS00473
C 517	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 518	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 519	PCB JUMPER D0.6-P5.0	JW5.0T
C 520	ELECTROLYTIC CAP. 47µF/6.3V M or	CE0KMASTL470
	ELECTROLYTIC CAP. 47µF/6.3V M	CE0KMASDL470
C 521	CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 522	CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 524	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 527	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 529	CHIP CERAMIC CAP. F Z 0.047µF/50V	CHE1JZB0F473
C 535	CHIP CERAMIC CAP. B K 2200pF/50V	CHE1JKB0B222
C 536	CHIP CERAMIC CAP. B K 2200pF/50V	CHE1JKB0B222
C 537	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 538	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHE1JZB0F104
	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHE1EZB0F104
C 539	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 540	ELECTROLYTIC CAP. 220µF/6.3V M or	CE0KMASTL221
	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASDL221
C 542	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 543	ELECTROLYTIC CAP. 330µF/6.3V M H7	CE0KMASSL331
C 545	CHIP CERAMIC CAP. B K 470pF/50V	CHE1JKB0B471
C 558	CERAMIC CAP.(AX) F Z 0.022µF/25V CDA1EZT0F223	
C 560	CERAMIC CAP.(AX) X K 2200pF/16V	CDA1CKT0X222
C 566	CERAMIC CAP.(AX) B K 220pF/50V or	CCA1JKT0B221
	CERAMIC CAP.(AX) B J 220pF/50V	CCA1JJT0B221
C 702	ELECTROLYTIC CAP. 100µF/6.3V M or	CE0KMASTL101
	ELECTROLYTIC CAP. 100µF/6.3V M	CE0KMASDL101

Ref. No.	Description	Part No.
C 704	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 705	CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 707	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 711	ELECTROLYTIC CAP. 0.22μF/50V M or	CE1JMASTLR22
	ELECTROLYTIC CAP. 0.22μF/50V M	CE1JMASDLR22
C 712	CHIP CERAMIC CAP. F Z 0.047μF/50V	CHE1JZB0F473
C 851	CERAMIC CAP.(AX) B K 100pF/50V or	CCA1JKT0B101
	CERAMIC CAP.(AX) B J 100pF/50V	CCA1JJT0B101
C 852	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 853	CHIP CERAMIC CAP. B K 1000pF/50V	CHE1JKB0B102
C 854	CERAMIC CAP.(AX) B K 180pF/50V or	CCA1JKT0B181
	CERAMIC CAP.(AX) B J 180pF/50V	CCA1JJT0B181
C 855	CERAMIC CAP.(AX) SL J 22pF/50V	CCA1JJTSL220
C 856	ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 857	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 859	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMASSL470
C 860	CHIP CERAMIC CAP. SL J 33pF/50V	CHE1JJBSL330
C 861	CERAMIC CAP.(AX) SL J 33pF/50V	CCA1JJTSL330
C 862	CHIP CERAMIC CAP. B K 4700pF/50V	CHE1JKB0B472
C 497A	ELECTROLYTIC CAP. 47μF/16V M H7	CE1CMASSL470
	CONNECTORS	
CN 251	FE CONNECTOR, TOP 9P	JCFEJ09JG001
CN 501	CABLE CONNECTOR, 2P	JCTMC02TG001
CN 502	FE CONNECTOR, TOP 7P	JCFEJ07JG001
CN 503	CONNECTOR, 8P	J3TMA08TG002
CN 504	FE CONNECTOR, TOP 9P	JCFEJ09JG001
CN 507	CONNECTOR BASE 4P	J3TUA04TG001
	DIODES	
D 001	RECTIFIER DIODE 1N4005	NDQZ001N4005
D 002	RECTIFIER DIODE 1N4005	NDQZ001N4005
D 003	RECTIFIER DIODE 1N4005	NDQZ001N4005
D 004	RECTIFIER DIODE 1N4005	NDQZ001N4005
D 005	RECTIFIER DIODE BA158 or	NDQZ000BA158
	RECTIFIER DIODE ERA22-10	QDPZ0ERA2210
D 006	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 013	RECTIFIER DIODE BA157 or	NDQZ000BA157
	FAST RECOVERY DIODE ERA18-04	QDPZ0ERA1804
D 015	FAST RECOVERY DIODE ERB32-01	QDPZ0ERB3201
D 016	SCHOTTKY BARRIER DIODE SB340 or	NDQZ000SB340
	SCHOTTKY BARRIER DIODE ERC81-004	QDPZERC81004
D 018	ZENER DIODE MTZJT-779.1C	QDTC0MTZJ9R1
D 027	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 028	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 029	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 031	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 052	ZENER DIODE MTZJT-7710B	QDTB00MTZJ10
D 054	RECTIFIER DIODE 1N4005	NDQZ001N4005
D 055	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 057	ZENER DIODE MTZJT-775.1C	QDTC0MTZJ5R1
D 301	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 302	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148

Ref. No.	Description	Part No.
D 303	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 304	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 330	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 391	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 507	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1N4148	NDTZ001N4148
D 555	LED SIR-563ST3F P or	QPQPS1R563ST
	LED LTE-3271T-F	NPQZLTE3271T
D 701	ZENER DIODE MTZJT-7733D	QDTD00MTZJ33
D 851	ZENER DIODE MTZJT-775.1C	QDTC0MTZJ5R1
	LED EXCLUSIVE(A)	
D 595	LED(RED) LTL-4211N	NPQZLTL4211N
D 596	LED(RED) LTL-4211N	NPQZLTL4211N
D 597	LED(RED) LTL-4211N	NPQZLTL4211N
D 598	LED(GREEN) LTL-4231N	NPQZLTL4231N
D 599	LED(GREEN) LTL-4231N	NPQZLTL4231N
	LED EXCLUSIVE(B)	
D 595	LED(RED) LT6311G-41	NPQZ0LT6311G
D 596	LED(RED) LT6311G-41	NPQZ0LT6311G
D 597	LED(RED) LT6311G-41	NPQZ0LT6311G
D 598	LED(GREEN) LT6321-41	NPQZ00LT6321
D 599	LED(GREEN) LT6321-41	NPQZ00LT6321
	ICS	
IC 001 ⚠	PHOTOCOUPLER PC-17T1 or	QPE100PC17T1
	PHOTOCOUPLER LTV-817B-F or	NPEB0LTV817F
	PHOTOCOUPLER LTV-817C-F	NPEC0LTV817F
IC 301	IC:Y/C/A LA71080M	QSBBA0RSY001
IC 451	IC:HIFI LA72652M	QSMBA0RSY001
IC 501	MICROCONTROLLER 16BIT M37765MAA1A4GP or	QSMAB0RMB006
	MICROCONTROLLER 16BIT M37765MAA1A7GP	QSMAC0RMB006
IC 507	IC LB11880	QSBLA0SSY089
	COILS	
L 001 ⚠	LINE FILTER TLF9UA402W0R3	LLBG00ZTU027
L 002	BEAD CORE B16 RH 3.5X10X1.3 or	XL03010XM001
	BEAD CORE HF70BB3.5X10X1.3	XL03010TE001
L 004	BEAD CORE B16 RH 3.5X3X1.3 or	XL03003XM002
	BEAD CORE HF70BB4.1X3X2	XL03003TE001
L 007	BEAD CORE B16 RH 3.5X3X1.3 or	XL03003XM002
	BEAD CORE HF70BB4.1X3X2	XL03003TE001
L 009	CHOKE COIL 47μH K	LLBD00PKV007
L 010	BEAD CORE B16 RH 3.5X3X1.3 or	XL03003XM002
	BEAD CORE HF70BB4.1X3X2	XL03003TE001
L 251	INDUCTOR 22μH K 26T or	LLAXKATTU220
	INDUCTOR 22μH K 26T	LLAXKDTKA220
L 301	CHOKE COIL 47μH K	LLBD00PKV007
L 302	INDUCTOR 22μH K 26T or	LLAXKATTU220
	INDUCTOR 22μH K 26T	LLAXKDTKA220
L 304	INDUCTOR 100μH K 26T or	LLAXKATTU101
	INDUCTOR 100μH K 26T	LLAXKDTKA101
L 305	PCB JUMPER D0.6-P5.0	JW5.0T
L 306	INDUCTOR 2.2μH K 26T or	LLAXKATTU2R2
	INDUCTOR 2.2μH K 26T	LLAXKDTKA2R2
L 307	INDUCTOR 8.2μH K 26T or	LLAXKATTU8R2
	INDUCTOR 8.2μH K 26T	LLAXKDTKA8R2
L 309	INDUCTOR 68μH K 26T or	LLAXKATTU680

Ref. No.	Description	Part No.
	INDUCTOR 68µH K 26T	LLAXKDTKA680
L 421	INDUCTOR 47µH K 5FT or	LLARKBSTU470
	INDUCTOR 47µH K 5FT	LLARKDSKA470
L 451	PCB JUMPER D0.6-P5.0	JW5.0T
L 502	INDUCTOR 47µH K 26T or	LLAXKATTU470
	INDUCTOR 47µH K 26T	LLAXKDTKA470
L 503	INDUCTOR 100µH K 26T or	LLAXKATTU101
	INDUCTOR 100µH K 26T	LLAXKDTKA101
L 504	CHOKE COIL 47µH K	LLBD00PKV007
L 701	INDUCTOR 100µH K 26T or	LLAXKATTU101
	INDUCTOR 100µH K 26T	LLAXKDTKA101
L 702	PCB JUMPER D0.6-P5.0	JW5.0T
L 851	PCB JUMPER D0.6-P5.0	JW5.0T
L 852	INDUCTOR 2.7µH K 26T or	LLAXKATTU2R7
	INDUCTOR 2.7µH K 26T	LLAXKDTKA2R7
	TRANSISTORS	
Q 001 ⚠	FET 2SK2599 or	QFQZ02SK2599
⚠	FET 2SK2715	QFZZ02SK2715
Q 002 ⚠	TRANSISTOR 2SC2785(K) or	QQSK02SC2785
	TRANSISTOR 2SC1815-BL(TPE2) or	QQS202SC1815
	TRANSISTOR KTC3199(BL)	NQS50KTC3199
Q 029	TRANSISTOR 2SC2785(K) or	QQSK02SC2785
	TRANSISTOR 2SC1815-BL(TPE2) or	QQS202SC1815
	TRANSISTOR KTC3199(BL)	NQS50KTC3199
Q 031	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
	TRANSISTOR 2SC1815-GR(TPE2) or	QQS102SC1815
	TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR 2SC1740S(Q) or	QQSQ2SC1740S
	TRANSISTOR 2SC1740S(R)	QQSR2SC1740S
Q 052	RES. BUILT-IN TRANSISTOR BA1F4M-T or	QQSZ00BA1F4M
	RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
	RES. BUILT-IN TRANSISTOR DTC124ESA	QQSZDTC124ES
Q 055	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT	QQSGC536NNPA
Q 056	TRANSISTOR 2SC2120(Y) or	QQSY02SC2120
	TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q 060	RES. BUILT-IN TRANSISTOR BN1F4M-T or	QQSZ00BN1F4M
	RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
	RES. BUILT-IN TRANSISTOR DTA124ESA	QQSZDTA124ES
Q 302	TRANSISTOR KTC3193(Y)	NQSY0KTC3193
Q 303	TRANSISTOR 2SC2058(Q) or	QQSQ02SC2058
	TRANSISTOR 2SC2058(P) or	QQSP02SC2058
	TRANSISTOR 2SC2839(E) or	QQSE02SC2839
	TRANSISTOR 2SC2839(F)	QQSF02SC2839
Q 304	TRANSISTOR 2SC2058(Q) or	QQSQ02SC2058
	TRANSISTOR 2SC2058(P) or	QQSP02SC2058
	TRANSISTOR 2SC2839(E) or	QQSE02SC2839
	TRANSISTOR 2SC2839(F)	QQSF02SC2839
Q 391	TRANSISTOR 2SA1015-GR(TPE2) or	QQS102SA1015
	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	TRANSISTOR 2SA933AS(S)	QQSS2SA933AS
Q 421	TRANSISTOR 2SA1015-GR(TPE2) or	QQS102SA1015
	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	TRANSISTOR 2SA933AS(S)	QQSS2SA933AS
Q 422	TRANSISTOR 2SC2120(Y) or	QQSY02SC2120
	TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q 423	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT	QQSGC536NNPA

Ref. No.	Description	Part No.
Q 424	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT	QQSGC536NNPA
Q 425	RES. BUILT-IN TRANSISTOR BN1F4M-T or	QQSZ00BN1F4M
	RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
	RES. BUILT-IN TRANSISTOR DTA124ESA	QQSZDTA124ES
Q 501	TRANSISTOR 2SC2785(K) or	QQSK02SC2785
	TRANSISTOR 2SC1815-BL(TPE2) or	QQS202SC1815
	TRANSISTOR KTC3199(BL)	NQS50KTC3199
Q 503	PHOTO TRANSISTOR ST-304L-A or	QPZA00ST304L
	PHOTO TRANSISTOR ST-304L-B or	QPZB00ST304L
	PHOTO TRANSISTOR ST-304L-C or	QPZC00ST304L
	PHOTO TRANSISTOR ST-304L-D	QPZD00ST304L
Q 504	PHOTO TRANSISTOR ST-304L-A or	QPZA00ST304L
	PHOTO TRANSISTOR ST-304L-B or	QPZB00ST304L
	PHOTO TRANSISTOR ST-304L-C or	QPZC00ST304L
	PHOTO TRANSISTOR ST-304L-D	QPZD00ST304L
	RESISTORS	
R 001 ⚠	CARBON RES. 1/2W J 3.3M Ω	RCX2335A4001
R 004	CARBON RES. 1/6W J 1M Ω or	RCX6JATZ0105
	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R 005	CARBON RES. 1/6W J 1M Ω or	RCX6JATZ0105
	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R 008	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 011	FIXED METAL OXIDE FILM RES. 1W J 68k Ω or	RN01683KE009
	FIXED METAL OXIDE FILM RES. 1W J 68k Ω or	RN01683DP003
	FIXED METAL OXIDE FILM RES. 1W J 68k Ω or	RN01683ZU001
	FIXED METAL OXIDE FILM RES. 1W J 68k Ω	RN01683HH007
R 012	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 014	FIXED METAL OXIDE FILM RES. 1W J 1.2 Ω or	RN011R2KE009
	FIXED METAL OXIDE FILM RES. 1W J 1.2 Ω or	RN011R2DP003
	FIXED METAL OXIDE FILM RES. 1W J 1.2 Ω or	RN011R2ZU001
	FIXED METAL OXIDE FILM RES. 1W J 1.2 Ω	RN011R2HH007
R 018	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 019	CARBON RES. 1/6W J 220k Ω or	RCX6JATZ0224
	CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224
R 023	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 024	CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R 025	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R 026	CARBON RES. 1/6W J 470k Ω or	RCX6JATZ0474
	CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R 027	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 029	CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R 030	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 031	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 032	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 033	CARBON RES. 1/6W J 390 Ω or	RCX6JATZ0391
	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R 034	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 037	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 056	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102

Ref. No.	Description	Part No.
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 057	CARBON RES. 1/6W J 150 Ω or	RCX6JATZ0151
	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 071	CARBON RES. 1/6W J 2.7k Ω or	RCX6JATZ0272
	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 072	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 073	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 075	CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 253	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 301	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 302	CHIP RES. 1/10W J 12k Ω or	RRXAJB6Z0123
	CHIP RES. 1/8W J 12k Ω	RRX8JB6Z0123
R 303	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 304	CARBON RES. 1/6W J 4.3k Ω or	RCX6JATZ0432
	CARBON RES. 1/4W J 4.3k Ω	RCX4JATZ0432
R 305	CARBON RES. 1/6W J 1.5k Ω or	RCX6JATZ0152
	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 308	CHIP RES. 1/10W J 220 Ω or	RRXAJB6Z0221
	CHIP RES. 1/8W J 220 Ω	RRX8JB6Z0221
R 309	CHIP RES. 1/10W J 15k Ω or	RRXAJB6Z0153
	CHIP RES. 1/8W J 15k Ω	RRX8JB6Z0153
R 310	CHIP RES. 1/10W J 33k Ω or	RRXAJB6Z0333
	CHIP RES. 1/8W J 33k Ω	RRX8JB6Z0333
R 312	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 313	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 315	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 316	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 317	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 321	PCB JUMPER D0.6-P5.0	JW5.0T
R 322	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 325	CARBON RES. 1/6W J 560k Ω or	RCX6JATZ0564
	CARBON RES. 1/4W J 560k Ω	RCX4JATZ0564
R 329	CHIP RES. 1/10W J 3.9k Ω or	RRXAJB6Z0392
	CHIP RES. 1/8W J 3.9k Ω	RRX8JB6Z0392
R 330	CARBON RES. 1/6W J 3.9M Ω or	RCX6JATZ0395
	CARBON RES. 1/4W J 3.9M Ω	RCX4JATZ0395
R 332	PCB JUMPER D0.6-P5.0	JW5.0T
R 333	PCB JUMPER D0.6-P5.0	JW5.0T
R 334	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 335	CARBON RES. 1/6W J 1.5M Ω or	RCX6JATZ0155
	CARBON RES. 1/4W J 1.5M Ω	RCX4JATZ0155
R 342	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 391	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R 392	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R 393	CHIP RES. 1/10W J 47 Ω or	RRXAJB6Z0470
	CHIP RES. 1/8W J 47 Ω	RRX8JB6Z0470
R 394	CARBON RES. 1/6W J 10 Ω or	RCX6JATZ0100
	CARBON RES. 1/4W J 10 Ω	RCX4JATZ0100
R 395	CHIP RES. 1/10W J 220 Ω or	RRXAJB6Z0221
	CHIP RES. 1/8W J 220 Ω	RRX8JB6Z0221

Ref. No.	Description	Part No.
R 405	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 406	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 407	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 408	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 409	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 410	PCB JUMPER D0.6-P5.0	JW5.0T
R 411	CHIP RES. 1/10W J 5.6k Ω or	RRXAJB6Z0562
	CHIP RES. 1/8W J 5.6k Ω	RRX8JB6Z0562
R 421	PCB JUMPER D0.6-P5.0	JW5.0T
R 422	CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 423	PCB JUMPER D0.6-P5.0	JW5.0T
R 424	CARBON RES. 1/6W J 47k Ω or	RCX6JATZ0473
	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 425	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 426	CARBON RES. 1/6W J 820 Ω or	RCX6JATZ0821
	CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R 427	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 428	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 429	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 451	CARBON RES. 1/6W J 12k Ω or	RCX6JATZ0123
	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 452	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 453	CARBON RES. 1/6W J 47k Ω or	RCX6JATZ0473
	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 454	CARBON RES. 1/6W J 8.2k Ω or	RCX6JATZ0822
	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R 455	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 456	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 457	CHIP RES. 1/10W J 470 Ω or	RRXAJB6Z0471
	CHIP RES. 1/8W J 470 Ω	RRX8JB6Z0471
R 458	CARBON RES. 1/6W J 2.4k Ω or	RCX6JATZ0242
	CARBON RES. 1/4W J 2.4k Ω	RCX4JATZ0242
R 459	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 460	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 461	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 462	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 463	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 464	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 466	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 501	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 502	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 503	CHIP RES. 1/10W J 820 Ω or	RRXAJB6Z0821
	CHIP RES. 1/8W J 820 Ω	RRX8JB6Z0821
R 504	CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104

Ref. No.	Description	Part No.
	CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 505	CHIP RES. 1/10W J 47 Ω or	RRXAJB6Z0470
	CHIP RES. 1/8W J 47 Ω	RRX8JB6Z0470
R 506	CARBON RES. 1/6W J 1M Ω or	RCX6JATZ0105
	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R 507	CHIP RES. 1/10W J 220 Ω or	RRXAJB6Z0221
	CHIP RES. 1/8W J 220 Ω	RRX8JB6Z0221
R 509	CHIP RES. 1/10W J 330k Ω or	RRXAJB6Z0334
	CHIP RES. 1/8W J 330k Ω	RRX8JB6Z0334
R 510	CARBON RES. 1/6W J 39k Ω or	RCX6JATZ0393
	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R 511	CHIP RES. 1/10W J 220k Ω or	RRXAJB6Z0224
	CHIP RES. 1/8W J 220k Ω	RRX8JB6Z0224
R 512	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 513	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 514	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 515	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 518	CARBON RES. 1/6W J 120 Ω or	RCX6JATZ0121
	CARBON RES. 1/4W J 120 Ω	RCX4JATZ0121
R 522	CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 525	CHIP RES. 1/10W J 180 Ω or	RRXAJB6Z0181
	CHIP RES. 1/8W J 180 Ω	RRX8JB6Z0181
R 526	CHIP RES. 1/10W J 68k Ω or	RRXAJB6Z0683
	CHIP RES. 1/8W J 68k Ω	RRX8JB6Z0683
R 527	CARBON RES. 1/6W J 390 Ω or	RCX6JATZ0391
	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R 529	CARBON RES. 1/6W J 560k Ω or	RCX6JATZ0564
	CARBON RES. 1/4W J 560k Ω	RCX4JATZ0564
R 530	CHIP RES. 1/10W J 560k Ω or	RRXAJB6Z0564
	CHIP RES. 1/8W J 560k Ω	RRX8JB6Z0564
R 531	CHIP RES. 1/10W J 18k Ω or	RRXAJB6Z0183
	CHIP RES. 1/8W J 18k Ω	RRX8JB6Z0183
R 532	CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 533	CARBON RES. 1/4W G 22k Ω or	RCX4GATZ0223
	CARBON RES. 1/6W G 22k Ω	RCX6GATZ0223
R 534	CARBON RES. 1/4W G 6.8k Ω or	RCX4GATZ0682
	CARBON RES. 1/6W G 6.8k Ω	RCX6GATZ0682
R 535	CARBON RES. 1/4W G 3.9k Ω or	RCX4GATZ0392
	CARBON RES. 1/6W G 3.9k Ω	RCX6GATZ0392
R 536	CARBON RES. 1/4W G 1.8k Ω or	RCX4GATZ0182
	CARBON RES. 1/6W G 1.8k Ω	RCX6GATZ0182
R 538	CARBON RES. 1/4W G 680 Ω or	RCX4GATZ0681
	CARBON RES. 1/6W G 680 Ω	RCX6GATZ0681
R 539	CARBON RES. 1/4W G 4.7k Ω or	RCX4GATZ0472
	CARBON RES. 1/6W G 4.7k Ω	RCX6GATZ0472
R 540	CARBON RES. 1/4W G 33k Ω or	RCX4GATZ0333
	CARBON RES. 1/6W G 33k Ω	RCX6GATZ0333
R 541	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 542	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 543	CARBON RES. 1/6W J 0.47 Ω or	RCX6JATZ0R47
	CARBON RES. 1/4W J 0.47 Ω	RCX4JATZ0R47
R 544	CARBON RES. 1/6W J 560k Ω or	RCX6JATZ0564
	CARBON RES. 1/4W J 560k Ω	RCX4JATZ0564
R 545	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 546	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 548	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103

Ref. No.	Description	Part No.
	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 549	CARBON RES. 1/6W J 270k Ω or	RCX6JATZ0274
	CARBON RES. 1/4W J 270k Ω	RCX4JATZ0274
R 551	PCB JUMPER D0.6-P5.0	JW5.0T
R 553	CARBON RES. 1/6W J 270k Ω or	RCX6JATZ0274
	CARBON RES. 1/4W J 270k Ω	RCX4JATZ0274
R 557	PCB JUMPER D0.6-P5.0	JW5.0T
R 558	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 559	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 585	CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
	CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 586	CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 587	CHIP RES. 1/10W J 1.2k Ω or	RRXAJB6Z0122
	CHIP RES. 1/8W J 1.2k Ω	RRX8JB6Z0122
R 588	CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
	CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 589	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 595	CARBON RES. 1/6W J 680 Ω or	RCX6JATZ0681
	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 598	CARBON RES. 1/6W J 150 Ω or	RCX6JATZ0151
	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 601	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 604	CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 605	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 608	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 610	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 614	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 616	CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 637	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R 638	CARBON RES. 1/6W J 560 Ω or	RCX6JATZ0561
	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R 647	CARBON RES. 1/6W J 150 Ω or	RCX6JATZ0151
	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 701	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/8W J 100 Ω	RRX8JB6Z0101
R 702	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R 751	CHIP RES. 1/10W J 68 Ω or	RRXAJB6Z0680
	CHIP RES. 1/8W J 68 Ω	RRX8JB6Z0680
R 756	CHIP RES. 1/10W J 75 Ω or	RRXAJB6Z0750
	CHIP RES. 1/8W J 75 Ω	RRX8JB6Z0750
R 757	CHIP RES. 1/10W J 75 Ω or	RRXAJB6Z0750
	CHIP RES. 1/8W J 75 Ω	RRX8JB6Z0750
R 851	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 852	CHIP RES. 1/10W J 1M Ω or	RRXAJB6Z0105
	CHIP RES. 1/8W J 1M Ω	RRX8JB6Z0105
R 853	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 854	CARBON RES. 1/6W J 2.2k Ω or	RCX6JATZ0222
	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 855	CARBON RES. 1/6W J 1.3k Ω or	RCX6JATZ0132
	CARBON RES. 1/4W J 1.3k Ω	RCX4JATZ0132
R 856	CHIP RES. 1/10W J 27k Ω or	RRXAJB6Z0273
	CHIP RES. 1/8W J 27k Ω	RRX8JB6Z0273

Ref. No.	Description	Part No.
R 857	CARBON RES. 1/6W J 12k Ω or	RCX6JATZ0123
	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 858	CARBON RES. 1/6W J 1.2k Ω or	RCX6JATZ0122
	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
J 52	CARBON RES. 1/6W J 2.7k Ω or	RCX6JATZ0272
	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
J 94	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
J 95	CARBON RES. 1/6W J 470 Ω or	RCX6JATZ0471
	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
SWITCHES		
SW 501	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 502	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 503	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 504	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 505	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 506	PUSH SWITCH SPPB610301	SSP0102AL001
SW 507	ROTARY MODE SWITCH HMW0650-010010 or	SSR0107HD001
	ROTARY MODE SWITCH SSS-34MD	SSR0107KB001
SW 701	SLIDE SWITCH SK12D07VG5-L A	SSS0102LY003
MISCELLANEOUS		
2B 1	HOLDER, L.E.D.(U19)	0VM303546
2B 3	HOLDER, SENSOR(2)	0VM304011
2B 8	BUSH, LED(E)	0VM408832
2B 15	TAPE, HIMELON (8*10)	0VM410580
2B 34	PLATE, EARTH(U21)	0VM410233
2B 41	ADHESIVE TAPE (Used only if X501: 1811250)	0VM410612
A 5	JACK BOARD(HI-FI)	0VM303638A
AC 001 ⚠	AC CORD LA-2366 or	WAC0172LW006
	AC CORD WAC0172AS006	WAC0172AS006
CR 001 ⚠	GAP. WSG-R-3.10 or	FAZ000LW1002
	GAP. G3.10D	FAZ000LD6004
F 001 ⚠	FUSE 1A/250V or	PAGA20CW3102
	FUSE 1A/250V	PAGG20CAG102
FH 001	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078-1	XH01Z00DK002
FH 002	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078-1	XH01Z00DK002
JK 751	RCA JACK MSP-283V-B-324 or	JXRL040LY006
	RCA JACK AV3-25 or	JXRL040RP016
	RCA JACK JPJ4811-01-324	JXRL040HD002
JK 752	RCA JACK MSP-293V3-324 or	JYRL060LY003
	RCA JACK AV3-8,4-15A or	JYRL060RP004
	RCA JACK JPJ5121-01-324	JYRL060HD009
JK 753	RCA JACK(YELLOW) MSP-281V4-B or	JXRL010LY003
	RCA JACK(YELLOW) AV1-15-3 or	JXRL010RP013
	RCA JACK(YELLOW) JPJ2023-01-040	JXRL010HD014
JK 754	RCA JACK(WHITE) MSP-281V1-B or	JXRL010LY005
	RCA JACK(WHITE) AV1-15-4 or	JXRL010RP014
	RCA JACK(WHITE) JPJ2023-01-030	JXRL010HD013
JK 755	RCA JACK(RED) MSP-281V3-A or	JYRL010LY002
	RCA JACK(RED) AV1-15S-2 or	JYRL010RP005
	RCA JACK(RED) JPJ1023-01-020	JYRL010HD006
JW 010	WIRE 040/BRO/AWG26#1007	WX3101A6FF04
PS 501	PHOTO INTERRUPTER RPI-302	QPZZ00RP1302
RS 501	REMOTE RECEIVER PIC-26042LU or	USESJRSKK022
	REMOTE RECEIVER NJL65V367C	USESJRSJR014
SA 001 ⚠	SURGE ABSORBER JVR-10N471K or	NVQZR10N471K
	SURGE ABSORBER ENC471D-10AC	QVQZC471D10A
T 001 ⚠	PULSE TRANS SA-90510E	LTT00CPSA068
TP 301	PCB JUMPER D0.6-P20.0	JW20.0T
TP 302	PCB JUMPER D0.6-P7.5	JW7.5T
TP 303	PCB JUMPER D0.6-P22.5	JW22.5T
TP 501	PCB JUMPER D0.6-P9.0	JW9.0T
TP 502	PCB JUMPER D0.6-P9.0	JW9.0T
TP 506	PCB JUMPER D0.6-P10.0	JW10.0T
TP 507	PCB JUMPER D0.6-P30.0	JW30.0T
TP 510	PCB JUMPER D0.6-P25.0	JW25.0T
TP 511	PCB JUMPER D0.6-P10.0	JW10.0T
TP 751	PCB JUMPER D0.6-P7.5	JW7.5T
TP 752	PCB JUMPER D0.6-P12.5	JW12.5T
TP 753	PCB JUMPER D0.6-P15.0	JW15.0T
TU 701	TUNER UNIT 3AE4F1VD045APM or	UTUNNTUSP016
	TUNER UNIT NJH3091U254 or	UTUNNTUJR010
	TUNER UNIT TMDH2-A01A	UTUNNTUAL023
VR 501	CARBON P.O.T. 100k Ω B or	VRCB104HH014
	CARBON P.O.T. 100k Ω B	VRCB104KA011
X 301	CRYSTAL OSCILLATOR 3.579545MHZ or	FXC355LLN001
	CRYSTAL OSCILLATOR 3.579545MHZ	1811389
X 501	X'TAL 14.31818MHZ (No Use 2B41) or	FXC146LCT001
	X'TAL 14.31818MHZ (No Use 2B41) or	FXD146LDS003
	X'TAL 14.31818MHZ (No Use 2B41)	FXD146LDS004
X 501	X'TAL 14.31818MHZ (Use 2B41)	1811250
X 502	CRYSTAL OSCILLATOR 32.768KHZ or	FXB323LDS002
	CRYSTAL OSCILLATOR 32KHZ(10PPM)	1811351

Function CBA (MCV-B)

Ref. No.	Description	Part No.
	Function CBA (MCV-B) Consists of the following:	----------
CONNECTOR		
CN 651	CONNECTOR 4P	JCTUS04TG001
RESISTORS		
R 651	CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
	CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 652	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 653	CHIP RES. 1/10W J 1.2k Ω or	RRXAJB6Z0122
	CHIP RES. 1/8W J 1.2k Ω	RRX8JB6Z0122
R 654	CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
	CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 655	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 656	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 657	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 658	CHIP RES. 1/10W J 3.9k Ω or	RRXAJB6Z0392
	CHIP RES. 1/8W J 3.9k Ω	RRX8JB6Z0392
R 659	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
SWITCHES		
SW 657	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 659	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 660	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 668	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 671	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 672	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 673	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 685	TACT SWITCH KSM0614B or	SST0101HH013

Ref. No.	Description	Part No.
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 686	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041
SW 699	TACT SWITCH KSM0614B or	SST0101HH013
	TACT SWITCH SKQSAF001A	SST0101AL041

SUB CBA

Ref. No.	Description	Part No.
	SUB CBA Consists of the following:	0VSA10342
CN 499	ANGLE PIN HEADER, 3P	1770248
R 498	CARBON RES. 1/6W J 56k Ω or	RCX6JATZ0563
	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R 499	CARBON RES. 1/6W J 10M Ω or	RCX6JATZ0106
	CARBON RES. 1/4W J 10M Ω	RCX4JATZ0106
VR 499	CARBON P.O.T. 100k Ω B or	VRCB104HH014
	CARBON P.O.T. 100k Ω B	VRCB104KA011

DECK PARTS LIST

Note:

Two different, but interchangeable, types of Capstan Motor (B37) may be installed in these models. Please confirm B37 CAPSTAN MOTOR Type by color (See Fig. 1 and Fig.2).
B37 CAPSTAN MOTOR type varies in combination with L1051. Please see Table 1 for details and combination.

Table 1 (B37 and L1051 Combination)

B 37 CAPSTAN MOTOR		L 1051
Type	ID No.	ID No.
Black	MMDZB25SJ001	GPMS6090
Silver	MMDZB12SJ007	GPMB6090

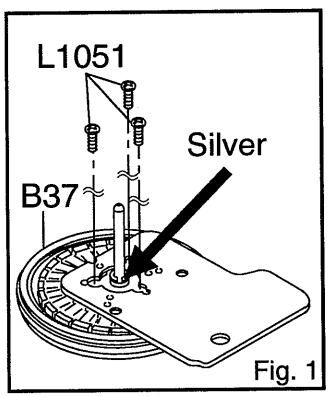


Fig. 1

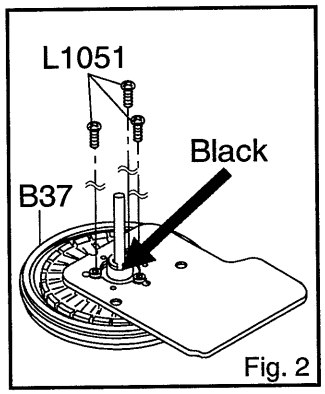


Fig. 2

Ref. No.	Description	Part No.
2B6	DECK GROUNDING PLATE U21	0VM410235
2L051	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
B1	CHASSIS ASSEMBLY MK9	0VSA09994
B2	CYLINDER ASSEMBLY MK9 NTSC 4HD HIFI	N9868CYL
B3	LOADING MOTOR ASSEMBLY MK9 or	0VSA09996
	LOADING MOTOR ASSEMBLY MK9(SANKYO)	0VSA09997
B4	L MOTOR HOLDER MK9	0VM303975
B8	PULLEY ASSEMBLY MK9	0VSA10075
B9	MOVING GUIDE S PREPARATION MK9	0VSA09985
B10	MOVING GUIDE T PREPARATION MK9	0VSA09986
B11	LOADING ARM T ASSEMBLY MK9	0VSA09984
B12	LOADING ARM S ASSEMBLY MK9	0VSA10001
B27	TENSION LEVAR SUB ASSEMBLY MK9	0VSA09999
B31	AC HEAD ASSEMBLY MK9	0VSA10002
B32	REEL T ASSEMBLY MK9	0VSA10307
B35	TAPE GUIDE ASSEMBLY MK9	0VSA09988
B37	CAPSTAN MOTOR F2QTB36 or	MMDZB12SJ007
	CAPSTAN MOTOR F2QSB31	MMDZB25SJ001
B38	MODE LEVER A ASSEMBLY MK9 90	0VSA10045
B46	REV SPRING MK9	0VM410019
B52	CAP BELT MK9	0VM410080
B73	FE HEAD(MK9) HVFHP0041A or	DHVEC01AL005
	FE HEAD(MK9) MH-131SF9	DHVEC01Z0002
B74	PRISM 2 MK9	0VM202621
B86	F BRAKE ASSEMBLY MK9	0VSA10004
B121	WORM MK9	0VM410021
B126	PULLEY MK9	0VM410020
B133	IDLER ASSEMBLY MK9	0VSA10000

Ref. No.	Description	Part No.
B148	TG CAP MK6	0VM407664C
B300	FL ASSEMBLY MK9	0VSA09989
B303	F DOOR OPENER MK9	0VM303855
B304	DOOR OPENER A MK9	0VM303859
B308	SLIDER SHAFT MK8	0VM409335
B313	C.DRIVE SPRING MK9	0VM410039
B319	CASSETTE SPRING MK9	0VM410571
B339	REEL S ASSEMBLY MK9	0VSA10306
B344	CASSETTE GUIDE R MK9	0VM100831
B345	CASSETTE GUIDE L MK9	0VM100830
B347	GUIDE HOLDER MK9	0VM303856
B350	SLIDER GEAR MK8 or	0VM409329
	SLIDER GEAR MK9	0VM410322
B352	C DRIVE LEVER MK9	0VM303857
B354	SLIDER R MK9	0VM202617
B355	SLIDER L MK9	0VM202616
B359	CLEANER LEVER MK9 (See Mechanical Part List)	
B360	CLEANER ROLLER MK9 (See Mechanical Part List)	
B361	CL POST MK9	0VM410031
B401	VH CONNECTOR 9AN MK9	0VM303995
B402	ACH-9B MK6	0VM407672
B403	ACH CONNECTOR AN(9P) MK9	0VM303991
B404	ACH CONNECTOR B(9P) MK9	0VM410149
B405	ACH CONNECTOR AN(7P) MK9	0VM303990
B406	ACH CONNECTOR B(7P) MK9	0VM410150
B410	PINCH ARM(A) ASSEMBLY MK9	0VSA09978
B411	PINCH SPRING MK9	0VM410290
B414	M BRAKE S ASSEMBLY MK9	0VSA09981
B416	M BRAKE T ASSEMBLY MK9	0VSA09983
B417	TENSION SPG MK9	0VM410070
B420	REC ARM MK9	0VM202622
B421	REC ARM SPRING MK6	0VM407708D
B423	CYLINDER SHIELD MK9	0VM303934
B425	LOCK LEVER SPRING MK9	0VM410038
B426	KICK PULLEY MK9	0VM410022
B427	KICK SPRING MK9	0VM410025
B435	F BRAKE SPRING MK9	0VM410029
B472	SLIDER R ASSEMBLY MK9	0VSA09992
B473	SLIDER L ASSEMBLY MK9	0VSA09993
B475	BT ARM ASSEMBLY MK9	0VSA09982
B476	REC ARM ASSEMBLY MK9	0VSA10043
B480	PINCH ARM(B) ASSEMBLY MK9	0VSA09980
B481	C.DRIVE SUB GEAR MK9	0VM202620
B482	CASSETTE PLATE MK9	0VM202618
B483	LOCK LEVER MK9	0VM410321
B484	REEL SHAFT MK9	0VM410052
B485	INSULATION CAP B MK9	0VM410155
B487	BAND BRAKE MK9	0VM303872
B488	MODE LEVER A MK9	0VM100833
B489	FF RACK MK9	0VM303874
B490	FF RACK SPG MK9	0VM410074
B491	CAM GEAR(A) MK9	0VM202614
B492	MODE GEAR MK9	0VM202615
B493	C DRIVE GEAR MK9	0VM202619
B494	DOOR OPENER B MK9	0VM303853
B495	FIRST GEAR MK9	0VM303862
B496	SECOND GEAR MK9	0VM303863
B498	M LEVER HOLDER MK9	0VM303976
B499	T LEVER HOLDER MK9	0VM303871
B500	CENTER PULLEY MK9	0VM304100
B501	WORM HOLDER MK9	0VM303974

Ref. No.	Description	Part No.
B502	CAM GEAR(B) MK9	0VM303882
B504	P.S.W F 6*2.55*0.5	0VM402629A
B505	SG WASHER MK9	0VM410596
B506	INSULATION CAP A MK9	0VM304051
B507	TA WASHER MK9	0VM410590
B508	S BRAKE SPG MK9	0VM410066
B509	MODE LEVER HOLDER A MK9	0VM304050
B511	JOINT SPRING MK9	0VM410144
B513	CAM WASHER MK9 8*3.1*0.5	0VM410232
B514	SCREW:SLIDER R MK7	0VM408853
B516	REEL WASHER MK9 5*2.1*0.5	0VM410058
B517	P.S.W F 6*2.55*0.5	0VM402629A
B518	P.S.W F 6*2.55*0.5	0VM402629A
B519	P.S.W F 6*2.55*0.5	0VM402629A
B520	T BRAKE SPG MK9	0VM410067
B521	SOFT SPG MK9	0VM410079
B522	TG POST ASSEMBLY MK9	0VSA10061
B523	FIRST POST ASSEMBLY MK9	0VSA10062
B524	MOTOR PCB ASSEMBLY(M) MK9 or	0VSA10063
	MOTOR PCB ASSEMBLY(S) MK9	0VSA10064
B525	LDG BELT(B) MK9	0VM410452
B526	E RING	EEK0030
B529	CLEANER ASSEMBLY MK9 (See Mechanical Part List)	
B530	REEL SPACER B MK9	0VM410602
B531	JOINT SCREW MK9	0VM410292
B532	JOINT HOLDER A MK9	0VM410246
B533	JOINT HOLDER(B) MK9	0VM410247
B534	STOP RUBBER MK9	0VM410330
B540	TENSION WASHER MK9	0VM410603
B541	REEL WASHER MK9 5*2.1*0.5	0VM410058
B550	REV SPRING B MK9	0VM410486
B551	FF ARM MK9	0VM303984
B552	SG SPACER MK9	0VM410597
B553	CLUTCH WASHER MK2	0VM404428
L1051	SCREW, B-TIGHT M2.6X6 PAN HEAD+	GPMB9060
L1053	SCREW PRISM MK7	0VM409038
L1081	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L1101	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L1114	SCREW, P-TIGHT M2X6 WASHER HEAD+	GCMP2060
L1151	SCREW, SEMS M3X4 PAN HEAD +	CPM33040
L1191	SCREW, S-TIGHT M2.6X10 WASHER HEAD+	GCMS9100
L1321	SCREW, P-TIGHT M3X6 BIND HEAD+	GBMP3060
L1341	SCREW, P-TIGHT M2.6X6 BIND HEAD+	GBMP9060
L1342	SCREW, P-TIGHT M2.6X6 BIND HEAD+	GBMP9060
L1406	SCREW, S-TIGHT M2.6X4 PAN HEAD +	GPMS9040
L1410	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L1450	SCREW, SEMS M2.6X5 PAN HEAD+	CPM39050
L1460	ADJUST SCREW M2.6X6(SOD)	0VM409436
L1461	SCREW, P-TIGHT M2.6X6 CUP HEAD+	GCMP9060
L1462	SCREW, P-TIGHT M2.6X12 PAN HEAD+	GPMP9120
L1463	SCREW, S-TIGHT M2.6X4 BIND HEAD+	GBMS9040
L1464	SCREW, GUIDE ROLLER/PPS	0VM406640
L1465	SCREW, S-TIGHT M2.6X4 BIND HEAD+	GBMS9040
L1466	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L1467	SCREW, P-TIGHT M3X10 WASHER HEAD+	GCMP3100
L1468	SCREW, S-TIGHT M2.6X6 PAN HEAD +	GPMS9060
L1469	SCREW, S-TIGHT M2.6X6 BIND HEAD+	GBMS9060
L1471	SCREW, S-TIGHT M2.6X6 BIND HEAD+	GBMS9060
L1475	SCREW, S-TIGHT M2.6X6 PAN HEAD +	GPMS9060
L1476	SCREW, P-TIGHT 2X14 BIND HEAD+	GBMP2140

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